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THE AMERICAN FOOD JOURNAL

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BY ASHER MINER

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The Report of Dr. C. L. Alsberg

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DELICIOUS
FLAVORING EXTRACT
VANILLA

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Also

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Eat Plenty of Bread—It's Good For You

The consumption of Bread in this country is constantly increasing.

The Wholesomeness, Healthfulness and Economy of Bread make it the "Perfect Food."

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THE AMERICAN FOOD JOURNAL

There is no higher art than that which tends toward the improvement of human food.—*Henry Ward Beecher.*

Robert Gordon Gould, *Editor*

Vol. XII JANUARY, 1917 No. 1

Legislation.

During the next two or three months the state legislatures will be busy "whereasing" and "resolving," the results of their labors taking the form of bills innumerable touching on and appertaining to food products. Some of the bills will, no doubt, be good bills and worthy of the support of every food manufacturer who has the best interests of his industry at heart. Others of the bills will not be so good, and should be opposed by every legitimate means. It will be a pleasure to co-operate with any of our readers who feel that measures before their state legislatures are not such as ought to be supported, and an even greater pleasure to co-operate in an effort to have passed measures that are of real constructive worth.

Back Issues Wanted.

In the advertising pages will be found an announcement, the purpose of which is to obtain from subscribers of long standing certain back issues of which this office is practically destitute. It is to be hoped that every reader who has any file copies of the Journal will afford us the courtesy of going into this matter carefully. There is a certain steady demand for bound volumes from libraries, lawyers who are specializing in food litigation and others seriously interested in the early days of the Food and Drugs Act, and it is to meet this demand that we are offering to pay a bonus for our own back numbers. The rather unusual call for the last issue printed is due to a quite unexpected demand for that number, which has reduced our available stock below the point of safety.

Subscription Rates Increased.

After the first of January, 1917, the subscription rate for The American Food Journal will be $1.50, the foreign rates being given in detail in the customary paragraph on another page of the Journal. Considering the greatly increased cost of periodical publishing, this raise is quite necessary. While few periodicals expect to make money in their subscription department, it is not wise to throw the entire expense burden upon the advertising department and inasmuch as the present subscription rate falls far short of meeting the actual mechanical costs—paper, composition, printing, and so forth—it has been considered wise to ask the readers to help share the burden. This announcement is made with less hesitation than ordinary because of the comprehensive plans for editorial contents announced recently, much of which is costly but which insures an actual value fully warranting the increased price.

The Report of the Chemist.

It is a pleasure to read Dr. C. L. Alsberg's annual report. This record of the year's work brings home very vividly the tremendous constructive activities of the Bureau of Chemistry as it is at present administered. In simple, unaffected manner, Dr. Alsberg relates in most concise fashion, paragraph after paragraph, the work done by his bureau during the past year. While no quarter is given to those who would debase our food supply, the report gives one the general impression that constructiveness and co-operation are more to Dr. Alsberg's liking than are the demogogic accusations occasionally met with in governmental reports and which, it must be admitted, make much better "copy" for the newspapers. There is very little of the theatric in this report; but there is a vast array of facts, with suggestions based thereon, which should be carefully considered by every one manufacturing food.

Flour.

The leading technical article in this issue is given us by Col. Asher Miner of Wilkes-Barre. It is confidently commended to all who are interested in the staff of life. Undeniably there is no foodstuff more important than flour and it behooves us to consider that necessity with a mind free from all traditional prejudice. The term "flour" at present means to the thoughtless, wheat flour. It also, but for purely selfish reasons, means that to the millers of wheat and it is evident that they intend to fight to the last ditch in defense of their informal monopoly. Col. Miner is one of the few millers of wheat who sees things in a big way. He is an influential member of the milling fraternity, having been president of the Millers' National Federation and at the present moment is a member of the board of directors of that powerful organization. He has spent his lifetime in milling and knows whereof he speaks. Without attempting to belittle the importance of that aristocratic cereal—wheat—he pays due respect to all other cereals or seeds which may in time to come be used to feed humanity.

The Food Manufacturer and the Law.

It is with considerable pleasure that announcement is made of what is perhaps the most important series of articles to be run during 1917. Messrs. Thomas E. Lannen and Thomas J. Hickey, attorneys who have specialized in the law of foods, have consented to furnish an article each month under the comprehensive title of "The Food Manufacturer and the Law." The first installment appears in this issue and is introductory in its nature, being confined to the early English common law and the Food and Drugs law of 1875. Succeeding articles will treat fully the highly important subject of the relationships existing between the consumer and those who manufacture commercial foods. Not only will the history of food legislation be traced from its inception down to the present moment, but also each important division of our present somewhat complex set of food laws will be described in detail and be compared with the balance of the legal code. Every important decision will be reviewed and analyzed. For all whose interests lie along the lines of food control it is hard to conceive of a more helpful list of subjects than those which constitute the syllabus of this forthcoming series of articles. It is interesting to know that a large part of this work will constitute a distinct addition to the legal literature of the day. There is at present no single title which covers this ground.

Baking Powder Standards.

Last month there appeared in this Journal a transcript of a stenographic report of the recently suggested definition and standard for baking powder. While that report was substantially correct, our Washington correspondent states that the last paragraph of the report signed by Messrs. Frear, Street and Hortvet, when quoted in full reads as follows: "The definition and standard for baking powder deals fundamentally with a group of products that have, from time to time, been the subjects of much discussion, and which present many phases of composition. The definition with its accompanying declarations provides for the use, as ingredients of baking powder, of all materials generally employed as such ingredients. It suggests the suitable subordinate classification according to the acid or acid-reacting substance or substances used; and finally, it leaves the way open to the introduction, under suitable label declarations, of wholesome food materials which may, for any reason, seem desirable, providing such introduction does not, in any way, contravene the Federal Food and Drugs Act, and does not reduce the yield of available carbon dioxide below the accompanying specification. This specification is in accordance with the producers' recommendations and not below the limit fixed by those state laws in which a limit for this leavening reaction-product has been given."

Banjo Strings and Beefsteak.

That there is an economic relationship existing between the slender thread of gut used to produce more or less pleasant music from the strident banjo and the succulent steak served on the American table is one of the many facts brought out by a series of advertisements Armour & Company have recently been running in the newspapers and the papers of the live stock industry. As examples of clear headed, intelligent use of advertising space these advertisements are of more than passing interest. Coincident with the opening of the convention of various farmers' associations recently held in Chicago the first advertisement appeared in the local papers. Its purpose was to apprise the public, and especially the farmers in convention assembled, that Armour & Company could not justly be blamed for the high prices at which meat is selling. Such sentences as *"Armour's selling prices on dressed beef carcasses are, today, less than they were two years ago"* and *"Armour is a manufacturer, and not a producer of raw materials. And in buying, handling and selling of meats and other foods Armour & Company work on a closer margin of profit than any large manufacturing industry existing in the world today"* and *"through scientific study which has made possible the utilization of inedible portions in valuable by-products, the dressed carcass of a beef steer sells for less than the steer costs Armour"* give a fair idea of the animating spirit behind this series of advertisements. Were it not for the humble banjo string it is safe to assume that beefsteak would cost even more than it does today.

Just Gossip.

At present there is much gossip in regard to who will be chosen as food commissioners in those states in which the recent elections produced a change in the dominant political party. In Illinois the incoming Republican organization will probably choose between the Hon. Alfred H. Jones, who has served in this capacity of the past, and Mr. Lewis Wiggins, of Springfield, Ill., a gentleman highly recommended by the downstate dairy interests. In Michigan gossip seems to indicate that a certain Mr. Woodward who managed the political campaign of the newly elected governor, will be asked to serve as food commissioner. Ohio, having gone Democratic, will see an entirely new department of agriculture and undoubtedly a Democratic chief of the dairy and food division. In Minnesota there is a possibility of Commissioner Farrell's being retained, although it seems likely that both he and Mr. John McCabe will be allowed to resign. Commissioner Farrel's claims for reappointment are being given staunch support by the dairy interests, as is entirely fitting in view of the loyal manner in which he has maintained the dairyman's point of view in all questions affecting food control. His recent action in regard to margarine is at the present moment being criticized by the powerful *Pioneer Press* of St. Paul and by certain organizations of women which, collectively, are generally considered as representing "the consumer." There is to be a change in Nebraska although gossip as to this state is rather indefinite at present.

The Aswell Bill.

On December 14, Representative James B. Aswell of Louisiana presented to the House of Representatives a bill, the purpose of which is to change the name of oleomargarine to "margarine"; to change the rate of tax on margarine; to protect consumers, dealers and manufacturers of margarine against fraud; and to afford the Internal Revenue Bureau means for the more efficient detection of fraud and for the collection of revenues. The bill seeks to do away with the present taxes of 10 cents per pound on colored margarine and ¼ cent per pound on uncolored, leaving in their stead a flat tax of 1 cent per pound on all margarine whether colored or uncolored. Provision is made to levy a tax upon retail dealers in margarine of $6 per annum, upon wholesale dealers of $48 per annum and upon manufacturers of $480 per annum. The bill also stipulates as to the weights of "manufacturers' original packages" and how they shall be sealed and stamped. Except as modified or repealed by the new act, all provisions of existing laws are continued. The bill was given No. 18914 and referred to the Committee on Agriculture which is known to be unfavorable to the cause of margarine by a majority of 13 to 8. There is but little likelihood of the Aswell bill being favorably reported to the present session of Congress unless the rapidly increasing demand for a removal of the present 10 cents per pound tax on margarine becomes sufficiently acute to force action. Fats are a very important part of the dietary and an expensive one. The present extremely high cost of living is doing more to focus attention upon the unnecessary and unfair tax of 10 cents a pound on a perfectly wholesome table fat than has the persistent effort of the manufacturers for a great many years. Organizations of women have recently passed resolutions favoring the removal of this old tax and powerful newspapers as close to the public ear as is the *Chicago Daily News* have stated editorially that the old order of affairs must be changed. Whether they will be changed before March 4 or not until the first session of the sixty-fifth Congress remains to be seen.

The Rainey Bill.

At about the time this issue reaches the public, Congressman Henry T. Rainey of Illinois will have submitted to the House of Representatives for its consideration a bill the purpose of which is to repeal the present obnoxious regulatory measures which cripple the manufacture of mixed flour. Nearly twenty years ago—long before the enactment of the Food and Drugs Act—there was a certain amount of surreptitious mixing of corn products with wheat flour. It was brought about by the Leiter deal, a gambling transaction which forced wheat to the then unprecedented figure of $1.85 a bushel. The surreptitious mixing of cereals was wrong, and wrong in that it was surreptitious. The mixed flour was perfectly wholesome, as even its opponents publicly admitted. Those of the wheat millers who did not care to go into the mixed flour business sought the aid of Congress in their effort to suppress all mixing. Realizing that the compounded product could not be attacked on the ground of wholesomeness, and following the precedent set in the margarine legislation, they made use of the taxing power of Congress to throttle the mixed flour industry. Their bill was drafted by wheat millers for the benefit of wheat millers. It was special legislation if ever there was an instance of special legislation in the history of American legislative enactments and from that time until this certain interests have succeeded in keeping the old law on the statute books, just as the dairy interests have succeeded in maintaining their monopoly of the business of furnishing table fats to the American public. Both old laws are bad from every point of view except the selfish point of view of the special interests which demand their retention. The Rainey bill will probably be passed by Congress at this session, and if such is the case, Mr. Rainey should be given credit for having made a determined fight in the interests of the consumer against powerful opponents who have subjected him to criticisms that were neither fair nor gentlemanly. It should be the pleasure as it is the duty of every reader of this Journal to write a personal letter to *his* congressman urging him to do all in his power to bring about the passage of the Rainey Mixed Flour Bill.

Food Standards.

The fact that Secretary Houston has recommended the enactment of standards for food products means that in all probability this highly important matter will soon be considered by Congress. The wheels of legislative machinery have already been set in motion and it behooves all manufacturers of foods to see to it that those upon whose shoulders rests the responsibility for establishing such standards are supplied with sufficient data to enable them to render decisions fair to all parties concerned. It can hardly be denied that the establishment of standards which are to have the force of law is in itself legislative action. There are many who hold that definitive law should be enacted as are all other laws, namely, through the regular legislative channels and after public hearings before legislative bodies rather than administrative officials. There are others who maintain that such collateral or supplementary legislation can best be handled by a committee of men representative of all elements in the food industry. One of the most important points in this connection is that of ascertaining before any definite steps are taken just what is to be standardized—the food product itself or the name of the food product. It is here that the precision of the academician is most likely to find itself in conflict with long established usages of the trade. For instance, the term "plum pudding" could, and perhaps should, be defined as a pudding made with plums (*Prunus domestica*). As a matter of fact, there has not been a plum in plum pudding since the days of good Queen Bess—as every housewife knows. If the name is to be standardized we may find that there is at the present moment no product to fit it and also find ourselves without a name for the product which now is called by that name. And what is true of plum pudding is true of many other and more important foodstuffs.

The matter of future improvement in the product should be sedulously provided for. The fact that many of the best manufacturers in the country, men whose conceptions of civic righteousness are quite as high as are those of any public official, are by no means convinced of the entire desirability of standards for food goes to show that there is a certain well grounded fear that such standards will prove a detriment rather than a help to the leaders in the industry. They claim that the establishment of any minimum has a tendency to lessen the rewards for research work and similar constructive measures. Another point which should be discussed is the probable desirability of, whenever possible, expressing food definitions in the terms of the finished product rather than in the terms of the traditional manufacturing processes employed. The accepted way to define many products is by simply reciting the customary way of manufacturing such products, but there is a great possibility that such definitions may work a distinct hardship upon those who stand ready to produce identical products by other and, perhaps, improved methods of manufacture. The most important point of all is for those who manufacture foods to work with the governmental authorities in a spirit of entire good will and full co-operation, insisting upon all points which seem necessary to produce a set of standards which shall truly represent the various foods in use by the American people at the present moment.

The American Food Journal

R. G. GOULD, President.

Published on the first of each month at 15-21 S. Market St., Chicago.

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We claim no responsibility for the views or opinions expressed by contributors.

The ownership of The American Food Journal is vested solely in the officers of the company. No person, firm or corporation, either directly or indirectly connected with the business it represents, has any share in its ownership or voice in shaping its policy which has in view at all times the best interests of the field it serves. It aims to discuss all subjects fairly, and to furnish its readers information concerning the progress and development of the food industries. It will answer any questions concerning the business to the best of its ability, and it asks its readers in all parts of the world to aid it with inquiries and suggestions, to which it will give prompt and earnest consideration.

Curtice Decision Appealed.

The Curtice Brothers case has been appealed by the Wisconsin state authorities on a writ of error. It is maintained that Judge Sanborn is in error in holding that any sale in Wisconsin other than that made in the wooden package by the importer is under the control of the Federal Food and Drugs Act.

Corn Products to Appeal to the Supreme Court.

Charles E. Hughes will act in conjunction with counsel for the Corn Products Refining Co. in appealing to the Supreme Court of the United States, the recent decision of Federal Judge Hand dissolving that company under the Sherman anti-trust law.

Shredded Wheat Hearing Postponed.

On December 2, the Shredded Wheat Company filed with the Federal Trade Commission a motion for an order adjourning the hearings set for December 5 until after the conclusion of their pending suit in Connecticut against the Ross Food Company. This motion was argued before the commission on December 9 and denied, the hearing being definitely set for January 11 at Buffalo.

Chain-Store Merger.

The Jones Brothers Tea Company, Grand Union Tea Company, Globe Grocery Stores, Anchor Pottery Company and Jones Brothers Importing Company have recently been consolidated and will be known as the Jones Brothers Tea Company as a result of their purchase by Merrill, Lynch & Co. of New York. The amount involved is about $10,000,000. The Grand Union Tea Company and the Jones Brothers Tea Company were established in 1872. The first of the Woolworth chain began operations in 1872. Harry Jones, who has been in charge for 15 years, will continue as president. It is claimed that the companies involved in this merger are the largest distributors of teas and coffees in the United States. They operate 256 stores and have 3,500 agents. They also make their own boxes, cartons, etc. Their main plant is in Brooklyn, where about 80 per cent of the merchandise sold is prepared.

One Reason Why Wheat Is High.

The Wheat Export Company was recently organized for the express purpose of buying grain for Great Britain. A credit of $25,000,000 has been arranged through the Corn Exchange Bank of New York.

Vesicular Stomatitis—Not Foot-and-Mouth Disease.

Careful and systematic observation of the Nebraska cattle found recently in the Kansas City stockyards suffering with sore mouths has failed to reveal certain typical symptoms of foot-and-mouth disease, according to the Bureau of Animal Industry. The specialists therefore are of the opinion that the disease is not foot-and-mouth disease but vesicular stomatitis, a mouth ailment which ordinarily affects horses and sometimes affects cattle. The most striking symptom of this disease is the occurrence of blisters and sores on the tongue and other portions of the mouth. This disease, while undoubtedly contagious, is not of great economic importance, as animals ordinarily recover from it in 8 to 10 days.

No "Short Patents" for Great Britain.

The British government recently issued the following milling regulation, as transmitted to the Department of Commerce by the American consul general at London:

"From January 1, except as hereafter stated, only flour milled according to schedule may be used for food purposes. Following percentage of flour must be extracted: From American wheat, No. 2 red western, 76; No. 2 red winter, 74; No. 2 new hard winter, 76; No. 1 northern Duluth, 75; No. 1 northern Manitoba old crop, 76; No. 2 ditto, 75; No. 3 ditto, 73.

"Imported flour which does not comply with the foregoing percentages may be used until further notice, provided that North American spring wheat flour so imported is not whiter than sample of straight run flour manufactured in Glasgow, at time imported flour was purchased, from North American spring wheat of grade not lower than No. 3 northern Manitoba; provided also that other wheat flour imported is not whiter than sample straight run flour manufactured here at time imported flour was purchased. Flour already purchased for importation, whether arrived or not, will be deemed as purchased on December 12."

Foodstuffs Statistics.

The Crop Reporting Board of the Bureau of Crop Estimates on December 1, makes the following estimates for the United States from reports of its correspondents:

CROP.	Production (000 omitted)		Yield per acre.		Price	
	1916 Prelim.	Average 1910-14.	1916 Prelim.	5-year av.	Dec. 1 1916	5-year av.
Corn, bus.	2,583,241	2,732,457	24.4	26.0	88.9	57.7
Winter wheat, bus.	481,744	494,654	13.8	16.4	162.7	88.7
Spring wheat, bus.	158,142	233,571	8.8	12.4	152.9	81.6
All wheat, bus....	639,886	728,225	12.1	14.9	160.3	86.5
Oats, bus.	1,251,992	1,157,961	30.1	30.5	52.4	38.2
Barley, bus.	180,927	186,208	23.6	24.5	88.2	59.5
Rye, bus.	47,383	37,568	15.3	16.3	122.1	74.2
Buckwheat, bus. .	11,840	17,022	14.0	20.6	112.9	71.0
Rice, bus.	41,982	24,378	47.8	33.3	88.6	83.9
Potatoes, bus. ..	285,437	360,772	80.4	97.9	146.1	59.2
Sweet Potatoes, bus.	70,955	57,117	91.7	93.5	84.8	72.1
Sugar Beets, tons.	6,671	5,391	9.80	10.80	617.	*561.
Beans, bus.	8,846	10,321	9.4	11.1	506.	**259.
Kafirs, bus.	50,340	114,460	13.2	27.6	106.	** 45.
Cranberries, bbls..	415	441	17.6	19.1	730.	**659.
Apples, bbls.	67,695	65,966	...	...	275.	222.
Peaches, bus.	36,939	43,752	...	...	114.	110.
Pears, bus.	10,377	11,184	...	...	93.3	84.2
Oranges, boxes ..	23,835	21,200	...	...	253.	**239.

*Average 1911-14.

**Price in 1915.

LEGISLATURES IN SESSION

By the time this issue of The American Food Journal reaches its readers practically all of the legislatures in the subjoined list will be in session. In Washington and in many state capitals this Journal now has a regularly employed staff correspondent. Full information in regard to any bill submitted to any state legislature or to our federal congress will be furnished gratis to any reader of this Journal. The list of legislative bodies follows:

> Congress (64th, 2nd session), now assembled at Washington, adjourns, by law, on March 4th. The 1st session of the 65th Congress convenes on the first Monday in December, 1917, unless a special session is called for on an earlier date.

State	Legislature convenes at	Date of convening	Duration of Session
Arizona	Phoenix	Jan. 8	no limit
Arkansas	Little Rock	Jan. 8	60 days
California	Sacramento	Jan. 8	60 days
Colorado	Denver	Jan. 3	90 days
Connecticut	Hartford	Jan. 3	no limit
Delaware	Dover	Jan. 2	no limit
Florida	Tallahassee	Apr. 3	60 days
Georgia	Atlanta	June 27	50 days
Idaho	Boise City	Jan. 8	60 days
Illinois	Springfield	Jan. 3	no limit
Indiana	Indianapolis	Jan. 4	60 days
Iowa	Des Moines	Jan. 8	no limit
Kansas	Topeka	Jan. 9	40 days
Maine	Augusta	Jan. 3	no limit
Massachusetts	Boston	Jan. 3	no limit
Michigan	Lansing	Jan. 3	no limit
Minnesota	St. Paul	Jan. 2	90 days
Missouri	Jefferson City	Jan. 3	70 days
Montana	Helena	Jan. 1	60 days
Nebraska	Lincoln	Jan. 2	60 days
Nevada	Carson City	Jan. 15	60 days
New Hampshire	Concord	Jan. 3	no limit
New Jersey	Trenton	Jan. 9	no limit
New Mexico	Santa Fe	Jan. 9	60 days
New York	Albany	Jan. 3	no limit
North Carolina	Raleigh	Jan. 3	60 days
North Dakota	Bismarck	Jan. 2	60 days
Ohio	Columbus	Jan. 1	no limit
Oklahoma	Oklahoma City	Jan. 2	no limit
Oregon	Salem	Jan. 8	40 days
Pennsylvania	Harrisburg	Jan. 2	no limit
Rhode Island	Providence	Jan. 2	no limit
South Carolina	Columbia	Jan. 9	no limit
South Dakota	Pierre	Jan. 2	60 days
Tennessee	Nashville	Jan. 1	75 days
Texas	Austin	Jan. 9	90 days
Utah	Salt Lake City	Jan. 8	60 days
Vermont	Montpelier	Jan. 3	no limit
Washington	Olympia	Jan. 8	60 days
West Virginia	Charleston	Jan. 10	45 days
Wisconsin	Madison	Jan. 10	no limit
Wyoming	Cheyenne	Jan. 9	40 days

Ice Cream Standards Held Valid

SUPREME COURT OF THE UNITED STATES
Nos. 40 and 50.—October Term, 1916.
(December 4, 1916.)

Mr. Justice Brandeis delivered the opinion of the Court.

These cases were argued together. In each a State statue which prohibits the sale of ice cream containing less than a fixed percentage of butter-fat is assailed as invalid under the Fourteenth Amendment; the Supreme Court of each State having held its statute constitutional. *State* v. *Hutchinson Ice Cream Co.,* 168 Iowa 1; *Commonwealth* v. *Crowl,* 245 Pa. Stat. 554. Iowa makes 12 per cent the required minimum; Pennsylvania 8 per cent. The material provisions of the several statutes are copied in the margin.*

The right of the State under the police power to regulate the sale of products with a view to preventing frauds or protecting the public health is conceded by plaintiffs in error. And they do not contend that the particular percentages of butter-fat set by Iowa and Pennsylvania are so exacting as to be in themselves unreasonable. Thirteen other states have by similar legislation set 14 per cent as the minimum; five other states 12 per cent; only eight states have fixed a percentage as low as Pennsylvania; and the United States Department of Agriculture has declared 14 per cent to be standard.† The main objection urged is this: To require that ice cream, in order to be legally salable, must contain some butter-fat is a regulation so unreasonable and arbitrary as to be a deprivation of property without due process of law and a denial of the equal protection of the laws. To support this contention the following trade facts are shown:

The ice cream of commerce is not iced or frozen cream. It is a frozen confection—a compound, The ingredients of this compound may vary widely in character, in the number used and in the proportions in which they are used. These variations are dependent upon the ingenuity, skill and judgment of the maker, the relative cost at a particular time or at a particular place of the possible ingredients, and the requirements of the market in respect to taste or selling price. Thus, some Philadelphia Ice Cream is made of only cream, sugar and a vanilla flavor. In making other Philadelphia Ice Cream the whites of eggs are added; and according to some formulas Vanilla Ice Cream may be made without any cream or milk whatsoever; for instance by proper manipulation of the yolks of eggs, the whites of eggs, sugar, syrup and the vanilla bean. All of these different compounds are commonly sold as ice cream; and none of them is necessarily unwholesome.

Plaintiffs in error contend that as ice cream is shown to be a generic term embracing a large number and variety of products and the term as used does not necessarily imply the use of dairy cream in its composition, it is arbitrary and unreasonable to limit the ice cream of commerce to that containing a fixed minimum of butter-fat. But the legislature may well have found in these facts persuasive evidence that the public welfare required the prohibition enacted. The facts show that in the absence of legislative regulation the ordinary purchaser at retail does not and cannot know exactly what he is getting when he purchases ice cream. He presumably believes that cream or at least rich milk is among the important ingredients; and he may make his purchase with a knowledge that butter-fat is the principal food value in cream or milk. Laws designed to prevent persons from being misled in respect to the weight, measurement, quality or ingredients of an article of general consumption are a common exercise of the police power. The legislature defines the standard article or fixes some of its characteristics; and it may conclude that fraud or mistake can be effectively prevented only by prohibiting the sale of the article under the usual trade name, if it fails to meet the requirements of the standard set. Laws prohibiting the sale of milk or cream containing less than fixed percentages of butter-fat present a familiar instance of such legislation. Cases in the State courts upholding laws of this character are referred to in the margin.‡ This court has repeatedly sustained the validity of similar prohibitions. *Schmiding* v. *Chicago,* 226 U. S. 578; *Armour & Co.* v. *North Dakota,* 240 U. S. 510.

It is specially urged that the statutes are unconstitutional because they do not merely define the term ice cream; but arbitrarily prohibit the sale of a large variety of wholesome compounds theretofore included under the name ice cream. The acts appear to us merely to prohibit the sale of such compounds as ice cream. Such is the construction given to the act by the Supreme Court of Iowa. *State* v. *Hutchinson Ice Cream Co.,* 168 Iowa 1, 15, which is of course binding on us. We cannot assume, in the absence of a definite and authoritative ruling, that the Supreme Court of Pennsylvania would construe the law of that state otherwise. The conviction here under review was for selling the "compound" as ice cream, so that we are not called upon to determine whether the State may in the exercise of its police power prohibit the sale even of a wholesome product, if the public welfare appear to require such action—and if, as here, interstate commerce is not involved. See *Powell* v. *Pennsylvania,* 127 U. S. 678, 685; *Schollenberger* v. *Pennsylvania,* 171 U. S. 1, 15.

In view of the conclusion stated above, it is unnecessary to consider whether the statutes are or are not sustainable as health measures; and upon this we express no opinion.

The judgment in each case is affirmed.

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*Iowa: Code Supp. 1913, sec. 4999-a20:

"No person, firm or corporation, . . . shall manufacture or introduce into the state, or solicit or take orders for delivery, or sell, exchange, deliver or have in his possession with the intent to sell, exchange or expose or offer for sale or exchange, any article of food which is adulterated or misbranded within the meaning of this act."

Code Supp., 1913, sec. 4999-a31e:

"For the purpose of this act an article of food shall be deemed to be adulterated:

"First. If any substance or substances has or have been mixed and packed with it so as to reduce or lower or injuriously affect its quality, strength or purity.

"Second. If any substance or substances has or have been substituted wholly or in part for the article.

"Third. If any valuable constituent of the article has been wholly or in part abstracted.

"Fourth. If it be an imitation of, or offered for sale, under the specific name of another article, or if it does not conform to the standards established by law."

Chap. 175, Acts 34th G. A.:

"ICE CREAM."

"1. Ice cream is the frozen product made from pure, wholesome sweet cream and sugar, with or without flavoring, and if desired, the addition of not to exceed one per cent. (1%) by weight of a harmless thickener, and contains not less than twelve per cent. (12%) by weight of milk fat, and the acidity shall not exceed three-tenths (3-10) of one per cent. (1%).

Pennsylvania: P. L., 63, Purden's Dig., vol. 5, p. 529:

"An act for the protection of the public health and to prevent fraud and deception in the manufacture, sale, offering for sale, exposing for sale, and having in possession with intent to sell, of adulterated or deleterious ice cream; fixing a standard of butter fat for ice cream; providing penalties for the violation thereof, and providing for the enforcement thereof.

†The requirements of the several states are set forth in U. S. Department of Agriculture (Bureau of Animal Industry), Circular 218, on Legal Standards for Dairy Products.

"Section 1. Be it enacted, etc., That no person, firm or corporate body, by himself, itself or themselves, or by his, her or their agents, servants, or employees, shall sell, offer for sale, expose for sale, or have in possession with intent to sell, ice cream adulted within the meaning of this act.

"Section 2. Ice cream shall be deemed to be adulterated within the meaning of this act—

"First. If it shall contain boric acid, formaldehyde, saccharine, or any other added substance or compound that is deleterious to health.

"Second. If it shall contain salts of copper, iron oxide, ochres, or any coloring substance deleterious to health; Provided, That this paragraph shall not be construed to prohibit the use of harmless coloring matter in ice cream, when not used for fraudulent purposes.

"Third. If it shall contain any deleterious flavoring matter, or flavoring matter not true to name.

"Fourth. If it be an imitation of, or offered for sale under, the name of another article. . . .

"Section 4. No ice cream shall be sold within the State containing less than eight (8) per centum butter fat, except where fruit or nuts are used for the purpose of flavoring, when it shall not contain less than six (6) per centum butter fat."

‡Iowa v. Schlenker, 112 Iowa 642; State v. Campbell, 64 N. H. 402; People v. Bowen, 182 N. Y. 1; State v. Crescent Creamery Co., 83 Minn. 284; Louisiana v. Stone, 46 La. Ann. 147; Deems v. Baltimore, 80 Md. 164; Commonwealth v. Wheeler, 205 Mass. 384; St. Louis v. Grafeman Dairy Co., 190 Mo. 507; State v. Symthe, 14 R. I. 100.

Secretary Houston's Report

The Secretary of Agriculture Submits His Annual Statement to President Wilson

Among the specific recommendations in the annual report of the Secretary of Agriculture are:

1. That the Secretary of Agriculture be authorized to establish legally enforceable standards of strength, quality, or purity for articles of food and for those articles of drugs which are sold under or by a name not recognized in the United States Pharmacopœia or National Formulary. The adoption of legally enforceable standards, the report states, will benefit the consumer and the honest manufacturer. Without them it is impossible to carry out completely the purposes of the Food and Drugs Act.

2. That the department be given authority to inspect establishments producing foods and drugs intended for shipment in interstate commerce. There are many forms of adulteration, the Secretary says, which are difficult to detect without inspection of the place of manufacture. This is particularly true of foods produced under insanitary conditions.

3. The inauguration of a systematic campaign for the eradication of tuberculosis in cattle and swine. A recommendation has been included in the estimates for the fiscal year 1918 that an appropriation of $75,000 be made for the purpose.

4. That a clear distinction be drawn between national parks and national forests and that a definite policy governing their relation be established.

5. That the name of the Office of Markets and Rural Organization be changed to Bureau of Markets. The Secretary states that the importance of the work and the size of the organization fully justify this change, and that it is in the interest of simplicity and convenience.

Distribution of Products.

The report sets forth what has been accomplished by the Office of Markets and Rural Organization in bringing about more effective distribution of farm products and in avoiding unnecessary wastes. The value to the producer of fruits and vegetables of the experimental market-news service inaugurated in 1915, the Secretary reports, has resulted in insistent demands for an extension of the work. During the past year telegraphic reports have been received from 33 important metropolitan markets and from all railroads serving producing territory. This information has been furnished to growers, shippers, and distributors. The actual monetary saving due to a wider knowledge of market conditions has exceeded the cost of the service many fold. Some of the benefits resulting from this attempt to develop for the farmer a reliable business basis, the report states, are the education of producers in the proper marketing of farm products, the avoidance of unnecessary loss due to diversions in transit, and the encouragement given to growers who desire to reach new consuming centers. Following a systematic survey of the centralized live-stock markets and a study of the methods and costs of marketing live stock and meats, plans have been developed for the inauguration of a demonstration market-news service for live stock similar to that now being conducted for perishable crops. An appropriation of $65,000 is available for this purpose and will be utilized during the present fiscal year.

The investigations concerning methods of handling and grading perishable products and the practicability of the standardization of the products and their containers have progressed rapidly. Several standardization laws, Federal and State, have been enacted during the year.

Production of Food Crops.

In order to bring about the production of food crops adequate to meet the consuming needs of the country and the export demand, the Secretary says that one of the greatest agricultural needs is the stabilizing of production. This can be accomplished in large measure through the use of better adapted or improved crop varieties, more systematic and rational crop rotations, and improved agricultural practice generally, including, in many sections, larger attention to live-stock production, all of which are essential to an enduring and economically sound agriculture. "It is highly desirable," he says, "further to broaden the areas for the production of staple crops as far as experience and sound economics may warrant." He cites a number of instances showing what has been done in this direction and emphasizes the importance to production of controlling plant diseases and insect pests and of quarantine measures to prevent their entry or spread.

Potash from Kelp.

In regard to the possibility of making use of the giant kelps of the Pacific Coast as a source of potash for fertilizer the Secretary states that there are eight large plants now in operation in Southern California for the extraction of potash from kelp but that they are being operated under the boom conditions incident to the war. A governmental plant to be operated upon a more nearly normal basis, with due attention given to by-products, is being planned. In regard thereto the Secretary states, "It is hoped that these experiments will result in the establishment of a potash industry which will prove profitable and permanent and render this country independent of foreign sources in normal times."

Those parts of the report concerned with the production of food and the legal control of its sale are of such immediate interest to the readers of this Journal that they are quoted in extenso. The excerpts follow:

The Food Supply.

Interesting questions arise as to whether the domestic food supply of the Nation is keeping pace with the growth in population and as to what are the prospects for the future.

The following table in this connection is illuminating:

FOOD SUPPLY OF THE UNITED STATES.

Population.

June 1, 1900	75,994,575
June 1, 1910	92,174,515
June 1, 1916	101,882,479

Item.	Production Total.	Production Per capita.
Meats: Beef, veal, mutton and pork (pounds):		
1899	18,865,000,000	248.2
1909	19,712,000,000	213.9
1915	22,378,000,000	219.6
Dairy products:		
Milk (gallons):		
1899	7,265,804,304	95.6
1909	7,466,406,384	81.0
1915 (estimated[1])	7,696,844,000	75.5
Butter and cheese (pounds)—		
1899	1,790,097,244	23.6
1909	1,942,378,069	21.1
1915 (no data available)	....	....
Poultry products:		
Poultry raised (number)—		
1899	....	....
1909	488,500,000	5.3
1915 (estimated)	555,500,000	5.5
Eggs (dozens)—		
1899	1,294,000,000	17.0
1909	1,591,000,000	17.3
1915 (estimated)	1,811,000,000	17.8
Fish (pounds):		
1900-1904	989,275,000	[2]12.5
1908	1,046,541,000	[3]11.6
1915 (no data available)	....	....
Cereals: Corn, wheat and rice (bushels):		
1899	3,333,868,710	43.9
1909	3,257,407,468	35.3
1915	4,094,986,999	40.2
Potatoes (bushels):		
1899	273,318,167	3.6
1909	389,194,965	4.2
1915	359,103,000	3.5
Sweet potatoes (bushels):		
1899	42,517,412	.56
1909	59,232,070	.64
1915	74,295,000	.73
Citrus fruits: Oranges, lemons and grapefruit (boxes):		
1899	7,075,557	.093
1909	23,447,044	.254
1915 (estimated)	24,670,282	.272
Orchard fruits: Apples, peaches and pears (bushels):		
1899	197,455,620	2.6
1909	190,433,327	2.1
1915	304,686,000	3.0
Small fruits (quarts):		
1899	463,218,612	6.1
1909	426,565,863	4.6
1915 (no data available)	....	...
Sugar (pounds):		
1899	486,006,871	6.4
1909	1,688,390,143	18.3
1915	2,025,680,000	19.9

[1] Based upon average annual increase, 1899 to 1909, as shown in census.

[2] Based upon population, June 1, 1902, 79,230,563.

[3] Based upon population, June 1, 1909, 90,556,521.

These statistics cover the past 16 years. Within this period the population of the Nation has increased, in round numbers, 26,000,000, or 33 per cent. The articles dealt with cover the more important parts of the diet of the people. Meats and dairy products constitute 37 per cent of the average diet, fish 2 per cent, cereals 31 per cent, Irish and sweet potatoes 13 per cent, and other vegetables 8 per cent. It is notable that, notwithstanding the very rapid increase in population, the production per capita of the commodities indicated, with the exception of meats and dairy products, has remained approximately the same or has increased.

Similar statistics are not available for vegetables other than Irish and sweet potatoes, but it is reasonable to assume that there has been at least a proportionate increase in production. The figures for Irish potatoes may be taken as a fair index of the normal increase of vegetable products. The potato acreage increased from 2,938,778 in 1899 to 3,668,855 in 1909, or 24.8 per cent, while the value of the product increased during the same period from approximately $98,400,000 to approximately $166,400,000, or 69.2 per cent. The value of all other vegetables increased during the 10-year period from $120,000,000 to $216,000,000 and the acreage by over 600,000. The statistics regarding canned vegetables are significant. In 1899, 19,300,000 cases of canned vegetables, valued at approximately $28,700,000, were packed in the United States. In 1909, 32,800,000 cases, having a value of approximately $51,600,000, were packed.

The area from which vegetables are drawn constantly is increasing, and improved canning, marketing, and transportation facilities have made it possible to supply our large markets with vegetables in greater variety throughout the year. It is a well-known fact that the consumption of fruits and vegetables has increased considerably in recent years and that they constitute a larger and more important part of the permanent diet of the people.

With all the agencies now available for improving agriculture there is ground for optimism as to the ability of the Nation not only to supply itself with food, but increasingly to meet the needs of the world.

Increasing the Meat Output.

To increase the meat production of the United States has been one of the principal aims of the department in recent years. This can not be accomplished in a day, but requires steady constructive effort over a period of years.

The activities of the department have taken two principal directions—(1) checking and eliminating diseases and parasites, and (2) increasing and improving stock raising by extending the industry where conditions are favorable and by pointing the way to better breeding and feeding.

Combating Stock Diseases.

The eradication of the southern cattle tick is proceeding more rapidly than ever before and is opening up for beef and dairy production a large territory. Within the past three years the quarantine has been removed from 106,810 square miles, making a total of 294,014 since the work was begun in 1906. More than 40 per cent of the original tick-infested territory has been cleared, and therefore the direct losses, originally estimated at $40,000,000 annually, are being greatly reduced.

The diseases known as sheep scabies and cattle scabies likewise are being eliminated rapidly from the Western States.

Hog cholera, always the cause of heavy losses throughout the country, is less prevalent this year than for many years. This is due, in marked degree, to the wise application of the protective serum devised by the department and to the demonstration work in 14 selected counties. In these counties there was an increase of 474,734 in the number raised and a decrease of 121,628 in the number lost, or a total gain of 596,362 hogs.

Contagious abortion in recent years has reached such proportions as seriously to threaten the cattle-raising industry. It strikes at the source by curtailing the production of calves. It has been studied by the department, and vigorous efforts are being made to advise stock breeders as to its nature and means of prevention and eradication.

Tuberculosis of Farm Animals.

Tuberculosis probably is the most common, destructive, and widely disseminated of the infectious diseases of domestic animals, especially of cattle and swine. Its seriousness is emphasized by the fact that it is transmitted to human beings. This may be prevented in reasonable measure by the pasteurization of milk and the inspection of meat. There remains, however, the problem of eliminating the disease from farm animals in order to prevent losses estimated at $25,000,000 a year in the United States. This is the greatest problem confronting the live-stock industry of the country. The disease can be prevented and some definite system of eradication should be inaugurated. Three undertakings seem practicable at this time.

Eradication From Pure-Bred Herds.—The first is the eradication from pure-bred herds of cattle. It is not necessary to resort to compulsion. The department should be placed in position more fully to assist individuals who wish to undertake the complete eradication of the disease from their herds. It could apply the tuberculin test and, in case infected animals are discovered, advise and supervise their proper disposal or management. The ruthless slaughter of all tuberculin reactors is not necessary. Many of them may be safely retained under proper quarantine conditions and their offspring raised free from tuberculosis. This plan has the approval of the breed-record associations in general and of many individual breeders.

Eradication From Hogs.—The second undertaking is the eradication of tuberculosis from hogs. The experts of the Bureau of Animal Industry believe that this would be relatively easy of accomplishment. Hogs do not convey the disease to one another to any appreciable extent. They contract it from cattle, chiefly in two ways—by being fed on non-pasteurized products from creameries and by following cattle of somewhat mature age in the feed lot and feeding upon the undigested grain. An educational campaign should be effective in removing these two sources of infection. It also may be desirable to have State laws requiring the pasteurization of skimmed milk and other products before they leave the creameries.

Eradication From Restricted Areas.—The third undertaking is complete eradication in restricted areas. The plan would be to select certain communities in which, after a thorough educational campaign had been made, the stock owners are willing to co-operate in eradicating the disease entirely from that territory. This would require the slaughter of infected animals and would necessitate reasonable indemnity for the animals slaughtered. The latter feature undoubtedly would require large expenditures.

The results accomplished in the District of Columbia afford an example of what can be done where systematic local eradication is undertaken. The joining of areas freed of tuberculosis in the manner proposed gradually should result in the elimination of the disease from groups of counties and from entire States.

Such an undertaking would be very similar to the plan of exterminating cattle ticks in the South. At first the opposition of the local people was almost unanimous. Gradually the people were convinced that the tick is an evil; that its eradication would be advantageous; and that the cost would be small in comparison with the benefits. The tick-eradication movement is now going forward very rapidly.

Such a plan should succeed against tuberculosis. It is a large task. Its feasibility will have to be thoroughly established first, as was the case with tick eradication. These suggestions, if carried into effect, should assist in developing a comprehensive plan for dealing with the tuberculosis situation which will meet with approval and lead to ultimate success. The department has recommended in the estimates for the next fiscal year that an appropriation of $75,000 be made for the inauguration of the work.

Development of Stock Raising.

Experiments by the department, in cooperation with the State experiment stations, have shown conclusively that the South is well adapted to economical beef and pork production. It is beginning to take its place with other sections as a stockraising territory. Numerous breeding herds are being established. The leading beef-cattle breeders' associations are featuring the southern trade, and two of them are holding sales in cooperation with the department. This work is not for the benefit of one section alone; the entire country will profit from the extension of meat production into new territory.

A study of growing beef animals in the corn belt shows that while the cost of producing calves is higher than is usually thought, the calves, as a rule, can be raised at a profit.

The boys' and girls' pig and poultry clubs are valuable agencies for enlarging the meat output, as well as for training and developing the coming generation of farmers. The pig clubs now have more than 21,000 members and the poultry clubs 8,500.

National Forest Ranges.—Investigations indicate that there has been an increase of from 15 to 30 per cent in the carrying capacity of the national forest ranges. This has been brought about by systematic regulation and improvement. These ranges now are supporting over 1,750,000 cattle and 7,850,000 sheep, exclusive of calves and lambs. It is estimated that within the next 10 years their carrying capacity will be increased by an additional 15 per cent, and that they will be capable of supporting fully 2,000,000 cattle and 9,000,000 sheep.

As previously pointed out, regulated grazing on the public lands outside the national forests would permit a considerable addition to the country's meat supply. At present these lands, which include an area of over 250,000,000 acres, are not supporting the number of animals that formerly grazed upon them. By the application of a system of control and development similar to that used on the national forests, it would be possible greatly to increase the number of meat-producing animals upon the public ranges.

Destruction of Forage by Rodents.—The grazing value of the western stock ranges is much reduced by the depredations of prairie dogs and ground squirrels. More than 22,000,000 acres in 12 States are infested with prairie dogs. Ground squirrels occur in large numbers in 18 States. In North Dakota alone the annual loss to farmers from the destruction of grain by ground squirrels is estimated at over $3,000,000. The Bureau of Biological Survey has developed new methods of poisoning these pests at a cost of approximately 5 cents per acre. The bureau practically has eradicated prairie dogs from more than 2,000,000 acres of public lands and ground squirrels from 500,000 acres. The complete elimination of them should enable the ranges and farms of the West to carry a million cattle and a million sheep more than at present.

Predatory Animals.—The annual losses of live stock in the United States, mainly upon the public domain, from the depredations of such animals as wolves, coyotes, mountain lions, and bears exceeds $12,000,000. A force of hunters and trappers has been organized in the infested States, and 543 wolves, 19,170 coyotes, and many other predatory animals have been destroyed. As a single wolf has been known to kill more than $3,000 worth of stock in one year, the effect on the stock-raising industry of the elimination of this number of destroyers is apparent. A continuance of the campaign should eliminate a large part of the losses from this source and also should check the spread of rabies among wild animals.

The Sheep Industry.

Normally the United States imports from about two-fifths to more than one-half of the wool required for domestic consumption. During the past three years importations have ranged from nearly 250,000,000 to more than 500,000,000 pounds each year, the average being over 300,000,000 pounds. The total consumption of lamb and mutton during the past 10 years has increased appreciably. In the fiscal year 1907 more than 9,500,000 sheep and lambs were slaughtered at plants subject to Federal inspection. The number now averages about 13,000,000 per annum.

In some sections of the United States there has been a steady decline in sheep production since the earliest statistical reports. This has been true also in every other settled country except Great Britain. The explanation undoubtedly is an economic one. In general, the primary purpose of sheep growers has been to produce wool. This can not be attained profitably on high-priced land. Naturally, therefore, with the increase in land values there is a rapid decline in the number of sheep. In Great Britain meat has been the principal product and wool the by-product, and the sheep industry has flourished.

Waste Land Made Productive.—If American farmers will follow the British custom, the industry can be put on a profitable and permanent basis. The greater number of sheep in Great Britain are raised in the hills and on land comparable to much of the "waste land" of American farms. The areas in this country, especially in the East and in parts of the South, now relatively little used, can profitably be devoted to sheep production if the farmers will secure the proper breed of sheep.

Sheep also can be made profitable on higher-priced land, as British experience shows. They compare favorably with other animals in economy of production. They require a minimum of expensive concentrated feeds. They exceed the other larger animals in the rate of maturity; lambs can be made ready for market at from four to six months. They make possible the economical and fuller use of labor. They are of assistance in keeping the farm free from weeds. The sheep farm is usually a weedless farm.

Extension of Industry.—In the United States only one in seven farms of over 20 acres now supports sheep, with an average of one sheep of shearing age to 3 acres of land. The 300,000,000 pounds of wool now imported annually could be secured from 50,000,000 sheep, and this number could be added to our stock if a fourth of the remaining farms sustained one sheep for each 3 acres.

In 1914 the Animal Husbandry Division of the Bureau of Animal Industry and the Bureau of Crop Estimates canvassed crop reporters in 36 States in reference to sheep on farms. The replies indicated that the number could be increased 150 per cent without displacing other animals. It is to our settled areas, particularly in the Central, Southern, and Eastern States, that we must look for an increase in the number of sheep.

The Dairy Industry.

Dairy farming is increasing in almost every section of the country, largely because it is the most economical form of agriculture so far as soil fertility is concerned. Dairying also is growing because dairy products are an important part of our food supply.

Cheese Production.—In 1909 this country produced 1,622,000,000 pounds of butter and 321,000,000 pounds of cheese. In 1870 our cheese exports amounted to 57,000,000 pounds. They steadily increased until 1881, when the total was 148,000,000 pounds. After that date they decreased rapidly until in 1914 they had dropped to less than 2,500,000 pounds. On the other hand, our imports of cheese amounted to 2,333,333 pounds in 1870 and advanced slowly until 1900, when 13,500,000 pounds were imported. From 1900 to 1914 the imports increased to 64,000,000 pounds. Much of this cheese could and should be produced in the United States.

Most of the cheese in this country has been made in the territory around the Great Lakes, where climatic conditions are favorable to the handling of whole milk. All the valleys in the Rocky Mountain section and a large area on the Pacific Coast offer splendid conditions for cheese production. So, also, does the mountain section of the South, including part of West Virginia, Virginia, Tennessee, North Carolina, South Carolina, and Georgia. Three factories have been established in one of these States and have been very successful.

Rigid selection, intelligent breeding, and skillful feeding are important factors in economical production. Cow-testing associations teach rigid selection and skillful feeding. Cooperative bull associations promote intelligent breeding. In cooperation with the various State agricultural colleges the department has greatly extended the work of these associations.

Community development in dairying was undertaken by the department in a typical small creamery community in northern Iowa in 1910. The work, which proved to be financially successful, was continued for five years, and similar work now is being carried on, with even greater success, in the vicinity of Grove City, Pa.

The creamery extension work has increased the efficiency of a large number of creameries. The department also has given assistance in building and equipping creameries, rearranging the machinery, systematizing the methods of operation, eliminating losses, and improving the quality of the products.

Extensive study of the types of bacteria in milk, their origin, and the channels through which they contaminate milk, has established a reasonable basis for dairy sanitation. Perhaps the most striking example of the application of the results of dairy laboratory research to practice is the development of methods of manufacture of some of the foreign cheeses which make up the bulk of our cheese imports.

The Food and Drugs Act.

Early in 1913 it became apparent that the efficiency of the Bureau of Chemistry in administering the Food and Drugs Act was impaired seriously by lack of system. The laboratories, both in and out of Washington, were congested with samples collected by inspectors. The inspectors, who were responsible only to the chief inspector in Washington, worked independently of the chemists in the branch laboratories, with resulting loss of efficiency. There was great delay in analyzing samples and in detecting adulterations. It was apparent that the work of the inspectors and of the chemists should be co-ordinated and more closely supervised. To make the bureau an effective agency in preventing the shipment of adulterated and misbranded foods and drugs, complete reorganization was necessary.

Accordingly, the field service of the bureau was set off from the central organization and divided into three districts, with headquarters at Washington, Chicago, and San Francisco. A single official, whose duty it is to co-ordinate the work of the inspectors and the laboratories, was placed in charge of each district. Several small branch laboratories were closed and the research work was concentrated in Washington. The reorganization has effected a material reduction in the cost of operation and has made possible the accomplishment of substantial results. It has enabled the bureau to concentrate the activities of its 46 inspectors against definite lines of food and drug products. The establishment of inspection districts, together with the creation in Washington of the Office of State Cooperative Food and Drug Control, has secured the active cooperation of State food and drug officials. This cooperation has been an important factor.

Instead of attempting to deal with food products indiscriminately, the Bureau of Chemistry during the past three years has given special attention to articles in common use, such as eggs, milk, beans, shellfish, citrus fruits, tomato products, canned foods, and cottonseed meal and other feed for animals. As a result of the activities of the bureau there has been a marked improvement in the quality of these products entering interstate commerce.

Concerted efforts of the inspectors have put an end to most of the interstate traffic in decomposed eggs. The milk supply of many cities and towns has been improved. There has been a material decrease in the quality of sweated, immature oranges and grapefruit sent to market. With the assistance of the Public Health Service and the Bureau of Fisheries, sanitary surveys have been made of the oyster beds on the Atlantic coast. Seizures of shipments of polluted oysters were effected and a marked improvement in the oyster supply, from the standpoint of wholesomeness, has been noted.

Sherley Amendment.

Special attention has been given during the last two years to the enforcement of the Sherley amendment. The amendment declares drugs to be misbranded if their labels contain false and fraudulent statements concerning their curative or therapeutic effects. A large number of criminal prosecutions have been successfully concluded and many cases are pending. A systematic plan has been developed for dealing with this problem, and already an improvement in the labeling of the medicinal preparations has resulted. Concerted efforts have been directed against spurious and adulterated drugs.

Number of Cases.

During the past three years the bureau has collected and analyzed at least 22,000 samples of domestic foods and drugs. It has afforded formal hearings to more than 9,000 manufacturers and shippers, and has sent to the Department of Justice, through the solicitor, about 2,250 cases. Approximately 3,000 cases have been finally disposed of by the courts, the great majority having been uncontested and practically all those contested having been decided in favor of the Government. During the same period about 50,000 importations have been sampled, of which approximately 3,000 were refused entry, and 15,000 were admitted only after relabeling to conform to the provisions of the law.

Research and Educational Work.

Investigations in the utilization and transportation of sea foods have resulted in a marked improvement in the canning of American sardines. Means also have been found to utilize the waste of this industry as an animal feed. Important improvements in the transportation of fresh shrimp and the shipment of fish under refrigeration have been made. Studies of the transportation and marketing of poultry and eggs have made possible the elimination of much waste due to decomposition resulting from faulty methods of packing and shipping. Important improvements have been made in the processes involved in the manufacture of gelatin, sauerkraut, maple and sorghum sirups, cider, fruit juices and syrups, citric acid, lemon oil, jams, jellies, marmalade, preserves, corn meal, and stock feeds.

Much important work has been done in the application of the principles of physical chemistry to the study of a large series of food products. The work upon the chemistry of sugars is recognized universally as of fundamental importance. A study of the composition of vegetable proteins has been begun, and already has yielded results which are certain to be of value in the feeding and fattening of farm animals.

Standards for Foods and Drugs.

Experience in connection with the administration of the Food and Drugs Act has strikingly emphasized the importance of enforceable standards for foods and drugs. Without them it is impossible to carry out completely the purposes of the act. In many instances protection of the consumer—the principal object of the law—can not fully be accomplished, nor can unfair practices on the part of unscrupulous manufacturers adequately be prevented. In some cases maintenance of prosecution is difficult and expensive, even when the articles involved clearly are adulterated or misbranded. To meet this situation, I have recommended in the estimates for the fiscal year 1918 that the Secretary of Agriculture be authorized to establish standards of strength, quality, or purity for articles of food and for those articles of drugs which are sold under or by a name not recognized in the United States Pharmacopœia or National Formulary. The suggestion provides that if any article fails to conform to the established standards it shall be deemed to be misbranded, unless it is labeled so as plainly and conspicuously to show how it differs from the standard.

The adoption of legally enforceable standards will benefit both the consumer and the honest manufacturer. They will give consumers exact information as to the quality of food and drug products and will enable manufacturers to produce articles which will meet the requirements of the act, putting competition on a fairer basis. They will be of great assistance to Federal and State officials in the enforcement of food and drug laws and will tend to promote uniformity among the various States.

Asks Authority to Inspect Factories.

I have also recommended in the estimates that the department be given authority to inspect establishments producing foods or drugs intended for shipment in interstate or foreign commerce. No specific authority exists at the present time. While many manufacturers do not object to inspection of their factories, the lack of definite authority has caused considerable embarrassment in the enforcement of the Food and Drugs Act. There are many forms of adulteration which are exceedingly difficult to detect without inspection of the place of manufacture. This is particularly true of foods produced under insanitary conditions. In many instances it is impossible to determine from a chemical or bacteriological examination the conditions under which a particular food or drug was produced. It is unnecessary to emphasize the importance of sanitation in the preparation of food products. If the suggested authority be granted, the department should be able to improve the quality of food products, both by bringing to the attention of manufacturers any insanitary conditions that may be discovered and by securing evidence of production under insanitary conditions.

Label Legend Lapses

The following legend, so familiar in the past on food and drug packages, "Guaranteed by Manufacturer, under the Food and Drugs Act, June 30, 1906, Serial Number 265,424," is disappearing from labels. A method for guaranteeing foods and drugs which will be less misleading to the public has been provided by the officials in charge of the enforcement of the Food and Drugs Act. Under the new plan manufacturers may guarantee their products on the invoice or bill of sale, or by certain other methods, but according to a food inspection decision which became effective on November 1, 1916, they may not make any statement regarding a guaranty or serial number on the labels of packages of foods or drugs which enter interstate or foreign commerce. However, labels containing the guaranty legend and serial number which were printed prior to May 5, 1914, the date on which the first notice to discontinue the guaranty legend and serial number was issued, may be used until May 1, 1918, in order to prevent the loss that otherwise would occur from the destruction of such labels.

The manufacturer, wholesaler, or other person residing in the United States and shipping foods or drugs into interstate commerce, according to the amended regulation, may print or stamp his guaranty on the invoice, bill of sale, or on any commercial paper that contains a list of the items of foods or drugs which he intends to guarantee.

Originally it was provided in the rules and regulations that the manufacturer or wholesaler who desired to guarantee that his products complied with the Food and Drugs Act might file a general guaranty with the Department of Agriculture to the effect that the foods or drugs he shipped into interstate commerce were not adulterated or misbranded within the meaning of that act. Upon the receipt of a properly executed guaranty the Department assigned a serial number to the manufacturer or wholesaler who filed the guaranty. The manufacturer or wholesaler was authorized to use this number on his labels to indicate that the guaranty which he had filed with the Department covered the products on which the number was used. After this method had been in operation for some time it was found that the guaranty legend on the label was misleading to the public. It was incorrectly assumed by consumers generally and some retail dealers that the guaranty legend on the label meant that a sample of the product had been examined by the U. S. Department of Agriculture and that in effect the U. S. Department of Agriculture actually guaranteed the product.

The Food and Drugs Act provides that no dealer shall be prosecuted under the provisions of that Act when he can establish a guaranty signed by the wholesaler, jobber, manufacturer, or other party residing in the United States, from whom he purchases articles of food and drugs. The guaranty should be to the effect that the foods and drugs to which it applies are not adulterated or misbranded within the meaning of the Act. The object of this provision is to make the manufacturer or wholesaler or person who knows the composition of the food and drug products responsible for their compliance with the provisions of the law. In many cases a dealer does not know the composition of the products he sells, and can not afford the expense of having an analysis made in order to determine it for himself. A provision, therefore, was inserted in the law to the effect that, if the dealer secured a guaranty from the manufacturer or wholesaler or other person from whom he purchases, the party making the guaranty would be responsible under the law, and the dealer would be relieved of responsibility. The dealer should see that all his foods and drugs which have entered interstate commerce, or which he expects to ship in interstate or foreign commerce, or to sell in the District of Columbia or the Territories, are guaranteed to him in the manner outlined. The guaranty was never intended to be, and never has been, in any sense a guaranty by the Department of Agriculture.

Report of Stocks of Frozen and Cured Meats, December 1, 1916.

This is the first monthly report issued by the Office of Markets and Rural Organization on the stocks of frozen and cured meats held by wholesale slaughtering and meat packing establishments and public cold storages.

Reports from 170 firms show that these firms now hold 122,695,990 pounds of frozen beef; 222 firms report holdings of 33,021,327 pounds of cured beef; 117 firms hold 29,242,941 pounds of frozen pork; 283 firms hold 124,351,542 pounds of dry salt pork; 352 firms hold 210,902,406 pounds of sweet pickled pork; 318 firms hold 52,168,141 pounds of lard; and 101 firms hold 5,085,796 pounds of frozen lamb and mutton.

The 130 firms that reported holdings of frozen beef of this year and last show a present stock of 115,710,467 pounds as compared with 103,326,591 pounds last year, an increase of 12,383,876 pounds or 12.0 per cent.

The 189 firms that reported cured beef held this year and last show a present stock of 31,733,450 pounds as compared with 18,802,814 pounds last year, an increase of 12,930,636 pounds or 68.8 per cent.

Holdings of frozen pork reported by 98 firms amount to 28,608,045 pounds as compared with 21,763,562 pounds held last year, a difference of 6,844,483 pounds or 31.4 per cent more.

The 121,456,942 pounds of dry salt pork reported by 234 firms who held 83,414,521 pounds last year is an increase of 38,042,421 pounds or 45.6 per cent.

Sweet pickled pork to the amount of 201,881,916 pounds is held by 289 firms whose holdings of a year ago amounted to 150,964,693 pounds, a difference of 53,917,223 pounds or 33.7 per cent more.

A comparison of the lard holdings of 261 firms shows 50,849,457 pounds held this year as compared with 34,377,151 pounds held the same date last year, a difference of 16,472,306 pounds or 47.9 per cent more.

The 83 firms that reported holding of frozen lamb and mutton of this year and last show a present stock of 4,909,222 pounds as compared with 4,047,308 pounds last year, an increase of 21.3 per cent.

Report of Cold Storage Holdings of Creamery Butter, December 1, 1916.

Reports from 239 cold storages show that their rooms contain 60,774,859 pounds of creamery butter as compared with 84,741,182 pounds in 220 storages on November 1. The 189 storages that reported holdings on December first of this year and last show a present stock of 58,627,236 pounds as compared with 71,848,767 pounds last year, a difference of 113,221,531 pounds or 18.4 per cent. The reports of 195 storages show that their holdings decreased 23.9 per cent during November as compared with the decrease of 14 per cent during October. Last year the holdings decreased 8.5 per cent during October and decreased 22.2 per cent during November.

Report of Cold Storage Holdings of American Cheese, December 1, 1916.

Reports from 282 cold storages show that their rooms contain 33,205,484 pounds of American cheese as compared with 40,434,524 pounds in 223 storages on November 1. The 203 storages that reported holdings on December first of this year and last show a present stock of 25,754,366 pounds as compared with 30,943,632 pounds last year, a difference of 5,189,266 pounds, or 16.8 per cent. The reports of 212 storages show that their holdings decreased 15.3 per cent during November as compared with the decrease of 2.5 per cent during October. Last year the holdings decreased 1.5 per cent during October and decreased 9.3 per cent during November.

Report of Cold Storage Holdings of Eggs, December 1, 1916.

Reports from 238 cold storages show that their rooms contain 2,103,869 cases of eggs as compared with 3,984,534 cases in 254 storages on November 1. The 193 storages that reported holdings of December 1 of this year and last show a present stock of 1,794,740 cases as compared with 2,737,802 cases last year, a difference of 993,062 cases or 35.6 per cent. The reports of 215 storages show that the holdings decreased 40.6 per cent during November as compared with the decrease of 25.1 per cent during October. Last year the holdings decreased 20.0 per cent during October and 31.2 per cent during November.

Governmental Publications.

The states relations service of the Department of Agriculture, under date of December 15, published Bulletin No. 469, being a professional paper by A. D. Holmes and H. L. Lang, scientific assistants, entitled "Fats and Their Economic Use in the Home." This paper was prepared under the direction of Dr. C. F. Langworthy, chief, office of home economics. This is an extremely valuable and timely treatise on the comparative values of the various forms of fats at present in use in this country. As the February issue of this Journal will have for its leading technical article "The Manufacture of Butter and Margarine," more extended notice of Bulletin No. 469 will be made at that time.

Opinions on matters of general interest to the grain trade arising under the U. S. Grain Standards Act, which became effective December 1, have just been published by the Office of Markets and Rural Organization of the U. S. Department of Agriculture which has charge of the administration of the act. The opinions, together with suggested forms for the grain inspection certificates and other documents required by the act or the regulations thereunder, are contained in Service and Regulatory Announcements No. 15.

The opinions interpretative of the Grain Standards Act include discussions of the prohibition placed on the use of other terms than the official grade designations for grain shipped in interstate commerce, the requirements of the old and new grades for shelled corn, and the applicability of the act to import grain and shipments, part for interstate and part for intrastate commerce. Other matters discussed include inspection of shelled corn for export, the application of the act to small shipments, fees for licensed inspectors, the effect of the act on intrastate transactions, the interstate shipment of shelled corn without inspection, and the employment of licensed inspectors by grain elevators or warehouses.

Copies of Service and Regulatory Announcements No. 15 may be obtained by interested parties on application to the Office of Markets and Rural Organization, U. S. Department of Agriculture, Washington, D. C.

On December 21, the office of markets and rural organization of the U. S. Department of Agriculture sent forth Service and Regulatory Announcement No. 17 which has to do with the Grain Standards Act. It consists largely of names of officials, directors, etc., in whose charge the enforcement of the act has been placed, together with considerable valuable information covering matters of detail in the operation of the act.

The Chemistry of Grapes.

Chemists working with the juice of eastern grapes will be interested in U. S. Department of Agriculture Bulletin 425, a professional paper on "The Chemical Composition of American Grapes Grown in the Central and Eastern States." This bulletin, which is supplementary to Bureau of Chemistry Bulletin 145, reports the results obtained by William B. Alwood, enological chemist, and other analysts, in the examination of 20 varieties of grapes from Ohio, New York and Pennsylvania, 29 from New Jersey, 8 from Virginia, and 8 from North Carolina. In addition, special attention was given to grapes from the Chautauqua and Keuka districts. The bulletin reports in particular on the sugar and acid determinations and contains a table which brings together the results of such determinations made during the period 1908-11 and the year 1913.

Dr. Alsberg's Report

The Chief of the Bureau of Chemistry Makes His Annual Report to the Secretary of Agriculture

THERE was marked advancement during the year in the work of the Bureau of Chemistry, both in the development of agricultural chemistry and the administration of the Federal food and drugs act. More than 50 scientific investigations were completed. The results have either been published or are in the process of publication. Among them may be mentioned the discovery of a new sugar, studies on the molds and bacteria found normally in foods or producing spoilage in them, investigations upon forage and ptomaine poisoning, upon the physiological action of coal-tar dyes, upon vitamines, upon saponins, and upon the proteins of peanut, of kafir, and other seeds.

A large number of cases involving violations of the food and drugs act have been sent to prosecution. The number of civil and criminal actions recommended, however, is not a complete index of the success attained in securing protection for the consumer under this law. Manufacturers of foods and drugs, more and more, are showing a willingness to comply with the regulations and in many cases have improved their products so as to anticipate expected requirements. To such manufacturers the service and regulatory announcements have been of direct assistance. In these announcements manufacturers and others concerned with the operations of the food and drugs act obtain ample notice of the department's opinions with regard to various trade practices and through this, as well as through other channels, are notified promptly of all changes. These announcements are supplemented by publication of the results of investigations which have developed improved methods of producing foods and drugs. The producers and manufacturers of food products also have been assisted directly through practical demonstrations of better methods of preparing and conserving foodstuffs.

The development of methods for preventing avoidable waste and spoilage of food products and the devising of new and valuable by-products have had special attention with the object of relieving as far as possible the prices paid by the consumer for finished products by the elimination of losses and waste.

Special emphasis has been given by those in charge of the regulatory work in the past year to the control of drug products and in safeguarding the public from food subject to spoilage or pollution. Such foods if contaminated or improperly handled are liable to produce infection or poisoning and thus constitute a serious menace to health. With the object, therefore, of making the food and drugs act a hygienic measure as well as a preventer of economic fraud, the bureau has given especial attention to the interstate traffic in unclean milk, spoiled eggs, polluted oysters, and spoiled canned goods.

The interruption of imports has made it particularly important to the health of the people to curb the traffic in spurious synthetic drugs, because exceptionally high prices have offered unusual temptation to the sophisticator. Rigid enforcement of the Sherley amendment aimed at the false and fraudulent labeling of medicines was continued as a measure necessary for health protection.

As is pointed out in the report, much of the success in enforcing the food and drugs act has been due to the effective cooperation developed between State food, drug, and dairy officials and the Federal regulatory force.

Research.

PLANT CHEMISTRY.—Investigation of the nitrogenous compounds of kafir, *Andropogon sorghum*, has shown that fully one-half of them are soluble in hot 70 per cent alcohol. The soluble nitrogen consists in great part of a new alcohol-soluble protein, the percentage composition of which has been determined. It contains the amino acids lysin and tryptophan, both indispensable to the nutrition of animals. These are not found in zein, the corresponding protein of maize. Now that this is known a rational attempt can be made to learn how kafir may be fed to make it no less valuable than maize.

The peanut, *Arachis hypogaea*, and two globulins which have been separated from it have been found to contain an abundance of di-amino nitrogen. This form of nitrogen is indispensable to the nutrition of animals and is contained in inadequate amounts in the common cereals from which most feeds are derived. Peanut press cake should, therefore, prove to be an easily accessible material to make such cereal feeds more efficient. In cooperation with the Bureau of Animal Industry it is planned to make a practical test of this matter.

From the jack bean, *Canavalia ensiformis*, two globulins and an albumen have been separated and studied.

The nitrogen distribution in cotton and tomato seed, cowpeas, corn, corn germ, and wheat has been determined.

Many analyses of forage plants of the arid and semiarid West were made for the Bureau of Plant Industry.

New saponins have been isolated from *Yucca angustifolia*, *Yucca radiosa*, *Yucca filamentosa*, and *Agave lecheguilla*. A comparison of the surface tension effect of a series of saponins with their haemolytic power failed to disclose any interrelation of the two properties of the saponins.

The glucoside in the leaves of upland cotton has been found to be quercimeritrin. The results of this work are in preparation for publication. The volatile oil distilled from the flowers has proven attractive to the boll weevil.

The results of the study of cyanogenesis in the common grass, *Tridens flavus*, showing that during maceration cyanogen may disappear, have been published. This observation signifies that many of the physiological studies upon cyanogenesis need revision.

The study upon boron absorption by plants discussed in the report for the year 1915 has been published.

A phytochemical laboratory has been established. It will undertake chemical investigations of the proximate principles of those plants which are of especial importance in connection with the enforcement of the foods and drugs act.

Carbohydrates.—A new sugar, the only heptose hitherto discovered in nature, *d*-manno-ketoheptose, has been separated from the avocado. The data are ready for publication. A large number of investigations upon the preparation, the mutarotation, and the rotatory power of sugars and sugar derivatives have been completed and prepared for publication. Some of the results were published during the year in the following papers: "The Acetyl Derivatives of the Sugars"; "The Isomeric Pentacetates of Glucosamine and Chondrosamine"; "The Isomeric Tetracetates of Xylose and Observations Regarding the Acetates of Melibiose, Trehalose, and Sucrose"; "A Fourth Crystalline Pentacetate of Xylose and Some Related Compounds"; "A Second Crystalline *d*-Frutose Pentacetate"; "Crystalline β-Methyl Fructoside and Its Tetracetates"; "The Preparation of Melibiose"; "Bromoacetyl Xylose and β-Triacetyl-methyl-xyloside."

Papers have been published upon the occurrence of sucrose in relatively large amounts in a new seedling grape and upon the occurence of sucrose in grapes of American origin. Bulletin No. 335, entitled "Development of Sugar and Acid in Grapes During Ripening," has been issued.

Flora of Foodstuffs.—An investigation of the range of conditions under which organisms of the *Bacillus botulinus* group may cause sickness or death in human beings and in domestic animals has been started. It was found that a strain of this organism obtained from a food poisoning case produced a very powerful poison. In cooperation with the Bureau of Animal Industry this poison was shown to affect rabbits, donkeys, and horses very quickly, cats in some cases and not in others, and not to affect fowls.

Because the losses to individual packers of sardines from swelled cans may be as high as 30 per cent of the yearly pack, this form of spoilage has been studied in the hope that means for preventing this waste may be found. The organism causing spoilage very rapidly forms spores which are killed only at high temperatures. Therefore, aside from ordinary cleanliness, careful processing at high temperatures is necessary to prevent the subsequent swelling of cans. In the "red feed" within the stomachs of "belly-blown" sardines a gas-producing bacterium, pathogenic to guinea pigs, has been found. A spore-bearing, gas-producing anaerobe identical with that found in sardines was isolated from two different consignments of spoiled sweetened condensed milk. *B. mesentericus ruber* was found to be the cause of the rose-pink color of certain spoiled sweetened condensed milks.

A general comparative study of the mold flora of the foodstuffs subjected to inspection has been begun, carefully distinguishing accidental organisms present as resting spores and those active in producing changes in the substrata.

The study of the effect of storage on bottled waters has shown that *B. coli, B. typhosus,* and *B. dysenteriae* inoculated into bottled mineral waters do not multiply, except the first two, which, in some instances, increased slightly during the first two days of storage. This was followed by a decrease in numbers. In a water practically free from dissolved solids, *B. coli* persisted in greatly reduced numbers for more than six months. A yellow micrococcus, multiplying rapidly, was found to be due to air contamination. The manner in which commercially bottled water changes its flora in one to six months was studied in considerable detail. Bulletin No. 369, "Bacteria in Commercial Bottled Waters," was issued. The results of a comparison of bile with lactose buillon for determining the presence of *B. coli* in water were also published.

The United States Public Health Service has been assisted by the Bureau of Chemistry in making sanitary surveys of oyster beds. The results of a study of the preparation for and the transportation to the market of oysters, of a comparative study of bacteriological methods for the examination of oysters, and of a comparative bacteriological examination of oyster-shell liquor and oyster meats have been prepared for publication.

In cooperation with the Bureau of Animal Industry a manuscript has been prepared showing that one member of the group of molds known as *Aspergillus niger* produces 10 times as much oxalic acid as others, without accompanying differences in structure.

It has been found that the common molds *Penicillium camemberti* and *Aspergillus niger* produce substances reacting with ferric chlorid like phenols, a matter of significance in detecting moldiness in foods. It has also been found that the so-called salicylic acid reaction of the Japanese distilled liquor, sake, is in reality due to an acid formed by the mold used to ferment the rice from which sake is distilled. Mold products of this type may be mistaken for preservatives such as salicylic acid.

An as yet undetermined species of ergot was discovered in caraway seed.

Anti-Neuritic Substances.—A variety of synthetic compounds have been made and tested physiologically. Several have been found to possess anti-neuritic properties similar to natural "vitamines." In collaboration with the United States Public Health Service a crystalline anti-neuritic product was isolated from yeast and some evidence obtained regarding its identity. A study of the nutritive and medicinal value of cod liver oil and extracts thereof was begun. One paper has been published and three nearly completed.

Cereals—Flour.—Studies have been made upon the grading of flour and upon the determination of grades of flour with especial reference to the bleaching of flour. It has been found that the particles of various sizes in flour differ in chemical composition and in baking qualities. The work on flour substitutes has been continued, and a report on the determination of moisture in bread has been made. Chemical studies have been made upon the changes that take place in the deterioration of oats and in the bleaching of inferior oats. Studies upon rice milling by-products have been completed. Bulletin No. 330, "The Milling of Rice and Its Mechanical and Chemical Effect on the Grain," has been issued jointly with the Bureau of Plant Industry.

Spices.—Studies have been made of pepper, mustard, celery, caraway, and poppy seed, savory and sage leaves, and saffron to determine their constants as a guide in regulatory work. The determination of oxalic acid in pepper and cinnamon has led to a revision of the statements in the literature on this subject. Gingerol, the pungent principle of ginger, an oily liquid boiling at 227° to 229° C. at 6 mm. pressure, and paradol, isolated from grains of paradise, have been studied.

Fats and Oils.—In cooperation with the Bureau of Plant Industry a bulletin has been issued upon peanut oil. A paper has been issued upon American charlock oil.

Drugs and Pharmacology.—Papers have been published on "The Stability of Nitrous Ether" and on the "Periodides of Phenacetin, Methacetin, and Triphenin." The results of investigations upon the "Periodides of Antipyrin, Iodantipyrin, Pyramidon" have been completed for publication.

Studies upon the heavy metals that may contaminate foods have been continued and some of the results published under the title, "The Influence of Heavy Metals on the Intestines." Papers upon the action of citrate and its decomposition in the body and upon the elimination of malate have been prepared for publication. An article on the toxicity of a series of oil-soluble dyes in which it is shown that some of them are eliminated in the urine combined with glycuronic acid has been finished and will soon be published. As a by-product of the study of the toxicity of water-soluble dyes containing iodin in the molecule, a research upon the influence of iodin and sodium iodid on the circulation has been printed.

It has been found that digitalis and adrenalin antagonize the toxic heart action of oil of chenopodium while caffein is synergistic. The result of this investigation has been published.

Insecticides and Fungicides.—A tree-banding material has been developed which has been used by the Bureau of Entomology in its gipsy moth campaign. It promises to prove superior to and cheaper than the materials now in use in this country.

The Federal Horticultural Board has been further assisted in the fumigation of cotton bales, and the process has been so improved that a large part of the hydrocyanic acid used is recovered One of the largest plants is now operating by this method.

In cooperation with the Bureau of Plant Industry attempts are being made to so modify the formula for Bordeaux mixture as to render it more efficient while at the same time reducing the amount of copper therein.

A paper upon the reduction of As^{V} to As^{III} by cuprous chlorid and the determination of arsenic by distillation as arsenic trichlorid has been published while others upon "The Preparation and Properties of Lead Chlor-Arsenate—Artificial Mimetite" and "The Arsenates of Lead" are in press.

Analytical Methods.—Methods for the estimation of volatile esters in citrus oils and extract, of alcohol in the presence of phenol, of phenacetin and salol in admixture, of tartaric acid, and of raffinose by enzymatic hydrolysis, have been published

The results of investigations upon the identification and determination of lactic acid in biological products, upon the separation of lithium from the other alkali metals, upon a study of the Kjeldahl method for determining nitrogen, upon the freezing point of milk as a means of detecting water, upon the detection of watered milk by means of simplified molecular concentration constants, upon the detection of ergot and molds in food and drug products, upon the determination of the quality of gelatin by the measurement of its mutarotation, and upon the quality of commercial litmus papers have been prepared for publication. A method has been devised for distinguishing between bottle fermented and artificially carbonated wines.

The collation of the mass of information upon methods of food and drug analysis accumulated by the bureau described in the report for 1915 has made great progress. Forty-five subjects were finished during the year, making 66 in all since the work was begun. Much of the work is more than compilation, since the aim is to present the bureau's collective experience during the past 15 years. This requires not merely the critical sifting of the bureau's records, together with a study of the literature, but also not infrequently independent research.

Conservation of Foodstuffs.

Poultry.—Eggs.—A precooling plant has been developed, cooled by ice, capable of chilling 15,000 pounds of eggs and poultry a week, costing, installed, approximately $800. With ice at $3 per ton it has been found in actual commercial use to effect a saving of at least $22 per carload in handling and chilling. The project upon improving the methods of fleshing poultry for the market has been continued. The work upon the transportation of perishables has been facilitated by the improvement of the method of installing resistance thermometers in refrigerator cars so that the temperature of the interior of a considerable number of cars may be observed simultaneously. The results of the previous work on damage to eggs in transit are being seen plainly throughout the country in greatly lessened waste at destination. Reports for the metropolitan district of New York City indicate that 41,161 dozens arrived broken during the calendar year 1915, while approximately twice that number were broken on arrival during 1914. In the study of the cold storage of eggs particular attention has been paid to the devising of methods to prevent stored eggs from acquiring the so-called "storage taste." Bulletin No. 224, "A Study of the Preparation of Frozen and Dried Eggs in the Producing Section," has been issued.

An investigation has been made of the contents of the crop of fowls for the purpose of furnishing data to detect the feeding, as a makeweight, of excessive quantities of sand just before slaughtering.

Fish.—Demonstrations in the preparation of fresh shrimp for the market with cleanliness, suitable boiling in brine, and thorough cooling has been of material value to the shrimp shippers of the southern east coast in the conduct of their business.

Studies of fish transportation to prevent decay have been continued. Perhaps no other perishable food is shipped long distances with so little knowledge of what is required to insure arrival in good order. The work was begun in Florida and at the end of the shipping season transferred to the Pacific coast, where transcontinental hauls are under observation. A Yearbook article upon the fish industry was published. Many analyses of food fish have been made which show that the data now on record are inaccurate because as a rule they were made without consideration of the season when the fish were taken. The studies upon the chemical changes taking place in fish in freezer storage begun last year have been continued.

The investigation upon the improvement of the methods of canning sardines has been brought to a successful conclusion. The industry has very largely accepted the recommendations of the bureau. It has taken steps to see that only sound fish are packed by imposing upon itself an inspection service.

Potatoes.—A process has been perfected for the drying of surplus and cull potatoes with simple machinery for the purpose of utilizing these tubers now largely wasted in certain localities in years of over-production. The product can be fed to animals or be used as a size or for the manufacture of gum, dextrin, or starch. Being dry, it can be stored indefinitely and transported more cheaply than the potato itself.

A simple practical method of ensiling potatoes without cooking or the use of pure cultures has been discovered. To the crushed raw potatoes is added a starter consisting of 1.5 to 4 per cent of ordinary corn meal. The loss from the resulting fermentation is negligible. Cattle and hogs eat the product freely. Extensive feeding experiments are planned for the coming year.

Citrus and other fruits.—The development of a method for the manufacture of citrate of lime from lemons has been completed, while the development of a method for the manufacture of citric acid free from contamination of heavy metals is well advanced. The manufacture of lemon oil has been further studied and the determination of the seasonal variations of the oil and citric acid content of lemons has been practically completed for certain sections of California. A study of tangerines has shown that the green fruit has value as a source of citric acid and that the oil has commercial possibilities. The manufacture of marmalade stock has been undertaken. A fine orange vinegar has been manufactured on a small commercial scale which promises to find a market, though a limited one, because it costs more to produce than the usual product. The determination of the composition of California oranges with reference to season, climate, soil, location, and methods of cultivation has been completed and the results are being prepared for publication. The study of the composition of oranges from selected trees has been of great assistance to the Bureau of Plant Industry in studying bud variations for the purpose of making selections in propagation experiments. Similar studies upon grape fruit have been begun with the Bureau of Plant Industry for the purpose of standardizing and improving the varieties grown. A study to establish the range of variation in composition of mature Florida and California grape fruit has been undertaken to be carried through several seasons.

Improved methods for the preparation of jams and jellies have been devised and manufacturers have been assisted in improving their methods and utilizing their waste products. In connection with the States Relations Service, from time to time lectures and demonstrations have been given at meetings of State agents upon the methods of preparing jams, jellies, and preserves in the household.

Miscellaneous.—A method has been developed, though not yet applied on a large scale, by which a pure cane syrup can be made which will not crystallize nor ferment. The studies upon the effect of the different manufacturing processes upon the composition of maple syrup and of sorghum syrup have been continued. A paper has been published upon the composition of tamarind syrup.

Beans produced in certain localities are not as highly esteemed as their otherwise excellent quality warrants, because when soaked they do not swell uniformly. It was found that a cuticular substance is especially abundant in the epidermis of the hilum of those beans which, when soaked, swell slowly. The oxalic acid content of a large variety of beans has been investigated.

An investigation of the sauerkraut industry has shown that while factory construction and management have largely followed German models, the climatic differences between this country and Germany have not been considered. Adequate temperature controls to diminish losses in waste liquor, kraut, and brine have not been provided.

Technological Investigations.

Dust explosions.—For the prevention of explosions in the threshing of grain an automatic fire extinguisher, a blower device, and a plan of wiring the machines have been devised in co-operation with the Office of Public Roads and the Bureau of Mines. They were described in a joint bulletin with the Office of Public Roads, Bulletin No. 379, and blue prints were furnished to all manufacturers of threshing machines in the United States by that office. Detailed information has also been sent to underwriters and to farmers' mutual insurance companies dealing in threshing-machine insurance. Plans were made jointly with the Office of Public Roads to demonstrate these devices in the field, with the assistance of the State experiment stations of Idaho, Oregon, and Washington. The States of New York and Pennsylvania have been assisted in the drafting of regulations designed to reduce the danger from dust explosions and fire in mills and elevators. With the assistance of the Bureau of Standards laboratory apparatus was constructed for the mechanical separation of dust into fractions of definite size and density. By means of specially designed apparatus the force developed by the explosion of various kinds of dust has been measured. Results of the investigation upon the inflammability of carbonaceous dusts and upon the inflammability of carbonaceous dusts in atmospheres of low oxygen tension have been prepared for publication. In co-operation with the State College of Pennsylvania, the study of explosions in attrition mills has been begun.

Paper.—A test has been found to determine the strength of paper when wet, which is a most important consideration in preparing specifications for photographic blue and brown print, bag, and wrapping papers. An instrument has been constructed for the measurement of the translucency of paper. Instructions for testing the folding endurance tester, with data on the accuracy of this machine, have been prepared for publication. Papers have been published upon a new colorimeter and upon the detection of faulty sizing in high-grade papers.

Tanning.—A manuscript has been prepared upon American sumac to aid the farmer in gathering this plant and to help supply the demand in the dyeing and tanning industry. It has been found that the best way to denature egg yolk for tanning is to add 2 per cent of birch tar oil. Power distillate may also be used.

Naval stores.—The Board of Trade of Brunswick, Ga., adopted the glass standards of the rosin types. They are now practically universally recognized in the Union. Examination of samples of rosin, mostly the pale grades, representing nearly 6,000 barrels, showed 9 per cent to have been graded too low and 38 per cent too high. A method for defining and determining the grades of turpentine has been perfected. A rough survey was made east of the Mississippi to determine the extent of the adulteration of spirits of turpentine sold for technical purposes. Twenty-six per cent of the samples were found to be adulterated with mineral oil to the extent of from 3 to 100 per cent.

Demonstration.

In connection with its research and regulatory work the bureau has done much demonstration and educational work. This has during the past years grown to such an extent that it deserves separate notice. Some of it has already been mentioned, as, for example, that in connection with the canning of sardines, the manufacture of dried and frozen eggs, the refrigeration of perishables, the shipping of fresh shrimp, and of fresh fish. The work of the poultry and egg packing demonstration car has increased greatly in efficiency and results. During the year 101 towns in the State of Indiana were visited and 10,600 people came to the car.

An extensive demonstration compaign has been conducted on the proper methods of packing tomato products which supplements the effect of prosecutions in eliminating unfit products from the market. In co-operation with the States Relations Service assistance has been given to canning clubs, especially in Florida, in the preparation of jams, jellies, and preserves. Assistance has also been given to manufacturers of these products. Instruction has been given in the grading of naval stores. Unfortunately a sufficient number of glass standards is not yet available because the disturbed trade conditions make it impossible to secure the necessary glasses. The demonstration of improved methods of producing rosin and turpentine has been begun in a small way. It is soon to be made more extensive.

Enforcement of Food and Drugs Act.

Domestic foods and drugs.—Five hundred and seventy-seven recommendations for seizure and 787 recommendations for criminal prosecution were made through the office of the Solicitor to the Department of Justice. The work with the Bureau of Standards to establish "tolerances and reasonable variations" under the net-weight amendment has progressed, that upon dairy products being completed. Among the 1,036 cases of all kinds terminated in the courts during the year were 198 alleging false and fraudulent labeling of medicines, in all of which save 5 the courts found for the government. In 1 food case a sentence of imprisonment was imposed. A number of indictments for conspiracy were found, upon evidence obtained by the bureau, concerning the adulteration of olive oil, domestic traffic in refuse eggs, traffic in refuse eggs exported to England, and the sale of spurious synthetic drugs.

There were collected 4,483 official samples. These showed an increasing percentage of substantial violations, an index not of increased disregard of the law, but, as pointed out in the report last year, solely of greater discrimination in the selection of samples. In addition an increased number of informal samples, about 4,000, were taken, because these demand less labor and yet are adequate for the routine checking of staple products to gauge the effect of the bureau's action, and for general surveys preliminary to definite campaigns. The number of official samples analyzed by the field force is given in Table I. The use of the guaranty legend and serial number ceased very largely during the year.

In the Service and Regulatory Announcements were published 52 opinions and 600 notices of judgment.

All the work on the certification of colors was concentrated in Washington. The laboratory at New York City was transferred to new and more commodious quarters in the United States Appraiser's Stores. The St. Paul laboratory was moved into the new Federal building in Minneapolis. The dairy laboratory was abolished and its work distributed among other laboratories of the bureau.

A separate office has been established to deal with cases of false and fraudulent labeling of medicines and mineral

TABLE I.—REPORT OF BRANCH LABORATORIES FOR YEAR ENDED JUNE 30, 1916.

Laboratory.	Import samples, analyses.			Floor-inspection samples.	Interstate samples, analyses.			Miscellaneous samples.	Total samples analyzed.	Hearings held.	
	Legal.	Illegal.	Released without prejudice.		Legal.	Illegal.	Check analysis.			Personal.	By correspondence.
Central district:											
Chicago	154	277	47	2,612	421	574	174	246	1,893	232	133
Cincinnati	192	51	4	243	163	176	39	1,977	2,602	134	326
Minneapolis	30	19	5	122	201	187	0	1,190	1,632	56	62
New Orleans	35	112	30	1,213	82	127	10	208	604	146	65
St. Louis	5	12	1	240	1,737	740	23	1,744	4,262	375	140
Total	416	471	87	4,430	2,604	1,804	246	5,365	10,993	943	726
Eastern district:											
Boston	364	453	84	10,089	125	343	23	195	1,587	439	193
Buffalo	9	60	13	43	31	143	0	306	562	64	113
New York	4.146	2,994	1,101	31,786	102	333	2	161	8,899	1,224	2,221
Philadelphia	277	227	101	2,973	47	59	2	42	755	360	40
Porto Rico	189	596	108	3,264	9	94	0	1	997	491	121
Savannah	36	39	1	0	84	150	0	25	335	13	39
Washington	68	11	1	14	314	304	9	657	1,364	13	4
Total	5.089	4,380	1,469	48,169	712	1,426	36	1,387	14,499	2,604	2,731
Western district:											
Denver	17	6	18	59	60	68	9	102	280	4	25
Honolulu	93	207	8	2,807	1	2	0	42	353	217	0
San Francisco	703	938	113	14,398	176	162	23	865	2,980	918	251
Seattle	134	351	68	6,605	76	73	0	340	1,042	267	29
Total	947	1,502	207	23,860	313	305	32	1,349	4,655	1,406	305
Grand total	6.452	6,353	1,763	76,468	3,629	3,535	314	8,101	30,147	4,953	3,762

waters under the Sherley amendment to the food and drugs act. To this office are also referred such medical matters as may arise in connection with the work of the bureau. At the request of the Secretary an officer of the United States Public Health Service was detailed to take charge. In consequence this work has been carried on more expeditiously and efficiently than heretofore.

A very close inspection was maintained during the past year over the early shipments of oranges and grapefruit. In this campaign the bureau received the active help of the greater part of the citrus fruits producers. Comparatively few sweated, immature oranges or grapefruit were marketed. The better quality of the fruit is believed to have resulted in a steadier market, so that the producer as well as the consumer benefited.

The unusual demand for cotton lint by the munitions factories greatly increased the delinting of cotton seed. The cake and meal made from such delinted seed has usually less protein than that from undelinted seed. Many mills in labeling their product used the analyses of former years, thus misleading the consumer, who, as a rule, was unable to protect himself because of the rising market. With the assistance of State officials, the bureau has taken action in many cases.

Based upon co-operative sanitary surveys of the waters over oyster beds in certain sections, described in the report for the last two years, the department, by appropriate notice, warned the producers against the shipment interstate of oysters from such sections during the fall, spring, and summer, when the oysters are not hibernating. In the case of particular regions warning of this nature had been issued some few seasons prior to last year. This warning had not been heeded in all cases. Last fall prosecutions were brought, with the result that all shipments from such condemned territory thereafter were stopped in the fall and spring.

Other forms of adulteration not already mentioned that received especial attention are: The substitution of mountain maple, *Accrspicatum,* for cramp bark, *Viburnum opulus,* the adulteration of oysters, scallops, and canned tomatoes with water, the substitution of colored starch paste for tomato sauce, the reprocessing of spoiled canned goods, the traffic in cull beans, in decomposed tomato products, in rancid olive oil, in wormy horse beans, the substitution of foreign fat for cacao butter in, and the addition of cacao shells to, cacao products, the adulteration of rice bran with rice hulls, the coloring of inferior macaroni and of plain noodles, the misbranding of domestic macaroni in simulation of imported goods, and the adulteration of oats with water or weed seeds.

Co-operation with state officials.—It is not possible to give a complete account of the assistance given State and municipal officials by the bureau, or of the assistance received by the bureau from them, because much of this cooperation is of an informal nature and because local officials do not always report to the bureau upon the value of the information received. However, such co-operation has been more effective than ever before owing to the manner in which the Office of State Co-operative Food and Drug Control, established in 1914, has conducted its work, described in a general way in the report of last year, and because of the greater amount of information it has distributed. Many conferences have been held with State officials, and they have been notified of the beginning and termination of court cases, of court decisions, of all public hearings held by the bureau. Twenty-three sets of information cards on methods of food and drug analysis have been issued to them and they have been furnished copies of analyses and inspection reports. A Manual of Procedure for the Guidance of State Health, Food and Drug Officials has been compiled and forwarded to State officials for their information and guidance when endeavoring to use the Federal food and drugs act as outlined in Section 5 of the act. A list of Federal and State Dairy, Food, Drug and Feeding Stuffs Officials has been prepared and kept up to date for the information of these officials. A compilation of State food and drug laws and of State food inspection decisions has been begun. Twenty-three instances of seizure action instituted by State officials are known to the bureau. Other seizure actions under the Federal law, not reported to the bureau, were undoubtedly inaugurated by joint action of the State official and the local United States attorneys. One hundred and ninety-one official samples were collected by State officials in 19 States. Among the adulterated articles proceeded against under State laws or municipal ordinances upon information furnished by the bureau may be mentioned decomposed eggs, decomposed canned goods, decomposed fish and poultry, polluted or watered oysters, watered scallops, saponin-containing foods, liquors containing wood alcohol, misbranded nostrums, and spurious drugs. In a large number of instances information was given to the Health Department of New York City which led to condemnation of adulterated food not coming under the jurisdiction of the Federal act. Many of the State and municipal officials have reciprocated for information of this kind by furnishing to the bureau evidence of violations of the Federal law. Among the most notable instances are polluted or watered oysters, watered scallops, adulterated milk or cream, decayed eggs, decomposed canned goods, butter and fish, wood alcohol in liquors, cottonseed meals and other feeds below guarantee, adulterated oats, and misbranded nostrums. Some specific instances of effective co-operation with State and municipal officials have been mentioned above in connection with other phases of the bureau's work. Two other types follow:

Abnormal trade conditions fostered the production of spurious drugs in place of synthetic ones which are ordinarily imported, notably acetyl-salicylic acid and neosalvarsan. Though a number of shipments were seized, a number of individuals successfully prosecuted under the food and drugs act, and indictments returned under the postal laws, the traffic could not wholly be suppressed by Federal action nor the goods in the hands of local dealers in many sections of the country destroyed. The situation was laid before State and municipal officials who instituted many prosecutions and seizures with the result that through this joint action this fraudulent traffic was broken up.

In co-operation with the food and drug commissioner of Texas, the cause of contamination of certain wells in Texas, the water of which is widely distributed, was determined. When the results were laid before the local authorities steps were taken to remedy the situation. Similar action has been taken in the case of other spas.

The co-operation in the sanitary control of the milk supply of small cities described in the report for last year has been extended in Illinois, Iowa, Missouri, Kansas, Nebraska, and in New England. It is proposed to repeat this work year after year, extending it each year to new territory. In some localities bad conditions were found, due in the main to insufficient cooling and careless handling. Perhaps the best result of this work has been that it stimulated some of the local authorities to take up similar work independently so that definite permanent improvement of the milk supply of a number of cities has resulted. The co-operative work on the control of the shipment of decomposed eggs described in the report of last year has been extended to cover much of the territory in which shipments originate so that eggs are now candled before shipment far more than formerly and the spoiled eggs destroyed or fed to poultry and stock. At the same time information given to local officials has helped them to curb local traffic in eggs rejected in candling.

The joint committee on definitions and standards has considered a large number of products. Based upon its recommendations the following food inspection decisions have been issued: No. 160, Gluten Products and "Diabetic" Food; No. 161, Maple Products; No. 162, Egg Noodles and Plain Noodles: No. 165, Cacao Products.

IMPORTATIONS.—The analyses and inspections made in the control of the importation of foods and drugs have been tabulated in Table I. Owing to the unusual trade conditions, while the quantity of imports has been reduced, the variety has not; and there has been such a variation in a single class of products that it has been found necessary to make a great many more examinations of a single importation than were formerly required. This situation is particularly reflected in the quality of the crude drugs and spices received. Prices have been unusually high and the temptation to offer spurious or adulterated articles correspondingly great. The quality of senna leaves, cinchona products, ipecac, and strophanthus was often poor and sometimes a completely spurious article has been offered. The inability to procure certain spices from the usual sources has resulted in the introduction from new sources of new types, some of which were adulterated or spurious. Especial difficulty was encountered with coriander, fennel, celery, anise, cumin, and Chinese and Indian mustard. The poisonous leaves of *Coriaria myrtifolia* were found in marjoram leaves, *Origanum marjorana*. Owing to the increase of the bureau force of microscopists the control of crude drugs and spices is becoming more effective. Worthy of special mention is the continuation of the exclusion from New England of spoiled Canadian milk and cream. Especial attention has also been paid to decomposed tomato products, spoiled sardines, and wormy olives. Mineral waters have been frequently examined for pollution. Many misbranded medicines have been detained until the misbranding was corrected. Many shipments of low-grade alimentary pastes colored in simulation of high-grade products have been excluded.

Collaboration.

For other bureaus of the department 8,194 samples were analyzed. For other executive departments and government establishments 789 were analyzed as shown in detail in Table II. The totals do not include samples that were analyzed by the field service of the bureau. These are included among the miscellaneous samples given in Table I.

TABLE II.—MISCELLANEOUS ANALYSES FOR OTHER BRANCHES OF THE GOVERNMENT.

Department of State	1
Department of the Treasury	65
Department of War	97
Department of Justice	3
Post Office Department	67
Department of the Navy	352
Department of the Interior	5
Department of Commerce	26
Department of Labor	1
Government Printing Office	10
The Panama Canal	90
District of Columbia	72
Total	789

Sixty-seven samples of fraudulent medicines sent through the mails have been analyzed for the Post Office Department. Assistance was also rendered at hearings and in court at trials.

Assistance was also given in the revision of the United States Pharmacopœia and in the revision of the official methods of analysis of the Association of Official Agricultural Chemists

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Food Law Specialists

Since the passage of the national Pure Food Law in 1906, each of the states of the Union has been vying with the others, it would seem, in an effort to pass pure food laws which will be a little more stringent than the others and require never-ceasing care on the part of the food manufacturer to avoid technical violations. The difficulty, in so far as the food manufacturer is concerned, is that there is little or no uniformity in the laws either as compared with the laws of the other states or the national Pure Food Law, and it will be seen that the task of the food manufacturer doing business in the various states is no light one.

It will also readily be seen that the lawyer with a general practice will not have the time to become familiar enough with the technicalities of the food laws and regulations of the various states and of the national government to protect his client It is a new branch of the law, requiring the undivided attention of the lawyer, just as does the branch of patents and trade marks, of criminal law, or of laws having to do with real estate.

The food law expert must familiarize himself with the business of his client, the customs of the trade in connection therewith and the terminology of the food business; in other words he must be not only familiar with the law, but with the business itself, a thing which the general practicing attorney is not in position to do.

Presumably the general practicing attorney is willing to concede this as being a distinct branch, and when the best interests of his clients require it, will call the food expert into consultation, just as the corporation lawyer now calls the trial or criminal lawyer.

The Food Manufacturer and the Law

By Thomas E. Lannen and Thomas J. Hickey
of the Chicago Bar

THE history of our present statutory regulation on the subject of the adulteration and misbranding of food products extends back through the dim distance to the common law of England. The common law of England as applied to the subject under discussion is not based upon English legislative enactment, but is the body of the law which has grown up and become established by immemorial custom and usage and the common consent of the people. It is the ideas of justice and right which have come to be recognized and entertained by the people as a whole as laid down and evidenced by judicial opinion.

Many of our States recognize and punish crimes recognized as such by the common law of England. In some of the States, however, common law crimes are not recognized and nothing is punished as a crime unless declared to be punishable by statute. It is well settled also that there are no common law crimes against the United States. Nothing is punishable as a crime against the United States unless expressly defined and declared punishable by federal statute.

It is interesting to journey back through the old legal volumes in search of the first manifestations of efforts to regulate and control the purity of food products.

Early English Common Law.

Blackstone in his treatise on offenses against the public health says that the first offense is breach of quarantine, which is a felony; and that the second offense against public health is the selling of unwholesome provisions; and Edward Hyde East, Esq., in his "Pleas of the Crown" lays down the doctrine that "the giving of any person unwholesome victuals not fit for man to eat, *lucri causa,* or from malice or deceit is undoubtedly in itself an indictable offense." The last mentioned authority also holds that cheating by false weights and measures, "by which the public in general may be imposed upon, without any imputation of folly or negligence" or by "any false token having the semblance of public authenticity," is indictable.

At an early period statutes designed to supplement the common law began to make their appearance. By these statutes it was sought to supply some of the deficiencies found to exist in the common law. Blackstone speaks of the statute of 51 *Henry* III, and the ordinance for bakers, which he states were designed to prohibit the sale of corrupt wine, contagious or unwholesome flesh, etc.; under pain of amercement for the first offense, pillory for the second, fine and imprisonment for the third, and abjuration of the town for the fourth. Blackstone also speaks of the statute of 12 *Car.* II which prohibited the adulteration of wine.

One of the earliest English cases on the subject of the adulteration of food involved the sale of bread containing excessive quantities of alum. The report of the trial reads in part:

> "It was proved on the part of the prosecution, that many of the loaves delivered by the defendant at the military asylum on a particular day were found when cut up, and distributed among the children, to be strongly impregnated with alum, and to contain in them several pieces of alum in its crystalline form, as large as horse beans."

There was also testimony that alum in such quantities was injurious to health and the court held that "Whoever introduces a substance into bread, which may be injurious to the health of those who consume it, is indictable." The court went on to say that if a baker will introduce such a substance into his bread, he must do it at his own hazard, and that he must take special care that the benefit he proposes to himself does not produce mischief to others, and the conviction of the defendant was upheld.

Many other old English cases were decided, having more or less to do with the question of the right at common law to punish for the sale of unwholesome foods and victuals. The general doctrine established by these cases is that a person selling food must not knowingly corrupt the food by which it may be rendered injurious to health, and if he violates this rule he is subject to punishment as for a crime at common law.

In regard to cheating by false weights and measures, these cases established the doctrine that if a person sold by false weights it was an indictable offense, but if he did not use false weights but sold a package, falsely affirming it to contain a certain quantity, when the package did not contain the quantity represented, he was guilty of nothing more serious than telling a lie, which was not indictable at common law.

The Food and Drug Act of 1875.

In 1875 a comprehensive food and drug act was enacted in England. The title of this act recited that its purpose was to make better provision for the sale of food and drugs in a pure state.

Section 1 of this act repeals all the existing laws relative to the adulteration of food.

Section 2 of the act defines the term food and drug as follows:

The term "food" shall include every article used for food or drink by man, other than drugs or water.

The term "drug" shall include medicine for internal or external use.

Section 3 of the act prohibits the mixing, coloring, staining, or powdering of any article of food with any ingredient or material so as to render the article injurious to health.

Section 4 prohibits the mixing, coloring, staining, or powdering of any drug with any ingredient or material so as to affect injuriously the quality or potency of such drug.

Section 5 provides that no person shall be liable to be convicted under either of the two last foregoing sections if he shows to the satisfaction of the court that he did not know of the article of food or drug sold by him being so mixed, colored, stained or powdered, and that he could not, with reasonable diligence, have obtained that knowledge.

Section 6 provides that no person shall sell to the prejudice of the purchaser any article of food or any drug which is not of the nature, substance, and quality of the article demanded by such purchaser, under a penalty not exceeding 20 pounds; provided that an offense shall not be deemed to be committed under this section in the following cases:

> (1) Where any matter or ingredient not injurious to health has been added to the food or drug because the same is required for the production or preparation thereof as an article of commerce, in a state fit for carriage or consumption, and not fraudulently to increase the bulk, weight, or measure of the food or drug, or conceal the inferior quality thereof;
>
> (2) Where the drug or food is a proprietary medicine, or is the subject of a patent in force, and is supplied in the state required by the specification of the patent;
>
> (3) Where the food or drug is compounded as in this Act mentioned;
>
> (4) Where the food or drug is unavoidably mixed with some extraneous matter in the process of collection or preparation.

Section 7 of the act provides that no person shall sell any compound article of food or compound drug which is not composed of ingredients in accordance with the demand of the purchaser.

Section 8 provides that no person shall be guilty of any offense in respect of the sale of an article of food or a drug mixed with any matter or ingredient not injurious to health, and not intended fraudulently to increase its bulk, weight or measure, or conceal its inferior quality, if at the time of delivering such article or drug he shall supply to the person receiving the same a notice, by a label distinctly and legibly printed on or with the article or drug to the effect that the same is mixed.

Section 9 provides that no person shall, with the intent that the same may be sold in its altered state without notice, abstract from an article of food any part of it so as to affect injuriously its quality, substance, or nature, and no person shall sell any article so altered without making disclosure of the alteration.

Section 10 provides for the appointment and duties of analysts and proceedings to obtain analyses.

Section 11 provides that the town council of any borough may engage the analyst of another borough or of the county.

Section 12 provides that the purchaser of an article of food many have a sample analyzed by the appropriate analyst appointed under the provisions of the act.

Section 13 provides that certain public officers named may procure any sample of food or drugs and submit the same to be analyzed for the purpose of discovering violations of the act.

Section 14 contains provision for dealing with the sample purchased for analysis and provides that the officer taking the sample shall offer to divide the article into three parts and deliver one of the parts of the sample to the seller or his agent, retain one of the parts for future comparison and submit the third part for analysis.

Section 15 provides that if the seller or his agent do not accept the offer of the purchaser to divide the article purchased, the analyst receiving the article for analysis shall divide the same into two parts, one of which he shall deliver to the purchaser taking the sample, who shall retain the same for production in case proceedings shall afterwards be taken in the matter.

Section 16 provides for the transmission of the sample to the analyst, through the postoffice if the analysts do not reside within two miles of the person taking the sample.

Section 17 provides that if any officer, inspector, etc., shall apply to purchase any article of food or any drug exposed to sale, or on sale by retail on any premises or in any shop or stores, and shall tender the price for the quantity which he shall require for the purpose of analysis, and the person applied to shall refuse to sell the same to such officer, such person shall be liable to a penalty not exceeding ten pounds.

Section 18 provides for the form of the certificate of the analyst.

Section 19 provides that every analyst shall make a quarterly report to the authority appointing him.

Section 20 provides that when the analyst shall have given his certificate of analysis, from which it may appear that an offense against the act has been committed, proceedings may be had to recover the penalty.

Section 21 provides that the certificate of the analyst shall be sufficient evidence of the facts therein stated unless the defendant shall require that the analysit shall be called as a witness, and the defendant may, if he thinks fit, tender himself and wife to be examined on his behalf and he or she shall, if he so desire, be examined accordingly.

Section 22 provides that the justices before whom any complaint may be made, or the court before whom any appeal may be heard, under the act, may in their discretion cause any article of food or drug to be sent to the Commissioners of Inland Revenue for analysis and the certificate of analysis shall be returned to the justices or the court.

Section 23 provides for the appeal in cases tried and prosecuted under the act.

Section 24 provides that in any prosecution under the act, where the fact of an article having been sold in a mixed state has been proved, if the defendant shall desire to rely upon any exception or provision contained in the act, it shall be incumbent upon him to prove the same.

Section 25 provides that if the defendant proves to the satisfaction of the court that he purchased the article in question as the same in nature, substance, and quality as that demanded of him by the prosecutor, and with a written warranty to that effect, that he had no reason to believe at the time when he sold it that the artitcle was otherwise, and that he sold it in the same state as when he purchased it, he shall be discharged from prosecution, but shall be liable to pay the costs incurred by the prosecutor, unless he shall have given due notice to him that he will rely on the above defense.

Section 26 provides for the payment of all penalties collected for violation of the act to the officer, inspector or constable, who shall turn same over to the authority for whom he acts to be applied towards the expenses of executing the act; but in cases prosecuted by other than such officer the penalties shall be applied according to certain general laws.

Section 27 provides that any person who shall, for the purpose of the act, forge any certificate or any writing purporting to contain a warranty, shall be guilty of a misdemeanor. It also provides that every person who shall wilfully apply to any article of food or drug, in any proceeding under the act, a certificate or warranty given in relation to any other article or drug, shall be guilty of an offense; and also provides that every person who shall give a false warranty in writing to any purchaser in respect of an article of food or drug sold by him shall be guilty of an offense; and that every person who shall wilfully give a label with any artitcle sold by him which shall falsely describe the article sold shall be guilty of an offense.

Section 28 provides that nothing in the act shall affect the power of proceeding by indictment, or take away any other remedy against any offender under the act, or in any way interfere with contracts and bargains between individuals and the rights and remedies belonging thereto.

This section further provides that in any action brought by any person for a breach of contract on the sale of any article of food or of any drug, such person may recover alone or in addition to any other damages recoverable by him the amount of any penalty in which he may have been convicted under the act, together with the costs paid by him upon such conviction and those incurred by him in and about his defense thereto, if he prove that the article or drug the subject of such conviction was sold to him as and for an article or drug of the same nature, substance, and quality as that which was demanded of him, and that he purchased it not knowing it to be otherwise, and afterwards sold it in the same state in which he purchased it; the defendant in such action being nevertheless at liberty to prove that the conviction was wrongful, or that the amount of costs awarded or claimed was unreasonable.

Section 29 provides for the distribution of the expenses of executing the act between the different localities and political divisions of the kingdom.

Section 30 provides for the examination by the Commissioners of Customs of tea imported into Great Britain or Ireland, and in case said tea is found to be mixed with other substances or exhausted tea, the same shall not be delivered unless with the sanction of the said Commissioners and on such terms and conditions as they shall see fit to direct, either for home consumption or for use for ships stores or for exportation; but if on inspection of such analysis it shall appear that such tea is, in the opinion of the analyst, unfit for human food, the same shall be forfeited and destroyed or otherwise disposed of in such manner as the said Commissioners may direct.

Section 31 contains a definition of what shall be deemed to be "exhausted" tea.

Section 32 provides that for the purposes of the act every liberty of a cinque port, not comprised within the jurisdiction of a borough, shall be part of the county in which it is situated and subject to the jurisdiction of the justices of such county.

Section 33 contains provisions relative to the application of the Act in Scotland.

Section 34 contains provisions as to the application of the Act in Ireland.

Section 35 provides that the Act shall commence on the first day of October, 1875.

Section 36 provides that the Act may be cited as "The Sale of Food & Drugs Act, 1875."

The Manufacture of Flour

By Asher Miner

THE manufacture of flour from wheat, or, indeed, any starchy material, is purely mechanical. Chemistry enters only to the extent of a few simple tests which are employed to ascertain what sort of finished product the mechanical process is bringing about. The process of cereal milling consists in running cleaned and moistened seed through a series of chilled iron rolls, the first sets usually about four which are corrugated, cracking the kernel, while the succeeding sets of smooth rolls, each pair being run more nearly together as the end of the train is reached, gradually reduce the cracked grain to a finely divided powder which we call flour. There are sifting devices innumerable ranging as to size from those of relatively large opening used in the preliminary cleaners to separate the grain from the bits of gravel that the threshing machine sends to market to the almost imperceptible mesh of the silk bolting cloth, with 125 threads to the inch, used for "dressing" patent wheat flour. There are "purifiers" which are essentially sieves used in conjunction with a draft of air from a blower, the former taking care of the large particles and the latter handling the light, fluffy material incident to each step in the gradual reduction of "purified middlings" to flour. There are dust collectors (flour dust, not dust from the floor), to which are sent the dust from the flour handled by the pneumatic element of the "purifiers."

As all seeds contain a germ—else they would be but poor specimens of seeds—and as all germs are rich in oil, and as all vegetable oils oxidize and rancidify, the germ is not considered a desirable part of a finished flour. Also, as all seeds are enclosed in an envelope of cellulose, which is termed "bran," and as cellulose is not digested by the human stomach, although cattle and swine handle it in good shape, the outer covering is removed from the finished flour—except in certain types prized more for their medicinal value than for their dietetic worth. It is unfortunate that vegetable oil rancidifies, as it is a good food; also it is unfortunate that the bran of cereals is relatively rich in mineral salts, as its abstraction leaves the flour to that extent deficient in that regard. However, these objections are more academic than practical, as the average mixed diet furnishes an ample quota of both fats and mineral salts.

Historical.

It is hardly necessary to point out that the pulverization of grains of all sorts is an extremely old custom. In archaeological exploration it is almost always possible to find the crude mortars in which, with a rough stone for a pestle, the grain was hammered into the form of coarse flour in the early days. In working with a mortar and pestle one naturally finishes the process of pulverization with a rotary motion of the pestle. No doubt our early ancestors noticed this phenomenon. At any rate, they long ago devised crude methods for imparting a rotary motion to their pulverizing machines, both members of which were rough field stones. The *arrastre* of Mexico, the primitive gold mining machine of that country, is a case in point. Before the Christian era crude stone flour mills had been invented in which a heavy disk of stone on a vertical axis was made to revolve upon a circular bedplate of like material. The grain was fed through a hole pierced in the upper stone, the outlet of which fed the raw grain to that part of the bedplate near the spindle. The finished flour came out from between the two faces of stone and was gathered in a trough fashioned at the rim of the circular bedplate. Any one who has seen the magnificent Italian film, "Cabiria," will recall the scene in which the powerful slave is compelled to run the flour mill of those early days. The film was of the twentieth century, but the flour mill was a true copy of those used before Christ. Examples of this sort of mill can be seen in the ruins of Pompeii. Such a machine leads by easy steps to the stone burr mills of comparatively recent times.

Modern Mills.

A stone burr outfit consists of two stone disks, the faces of which very nearly but not quite meet. In both upper and nether mill stones are grooves running from the center out and toward the rim in such manner as best to aid centrifugal force in forcing the product toward the edge. The "dressing" by hand with a steel chisel of a slightly worn burr stone is a task of considerable delicacy. While the burr mills are still used to a considerable extent for grinding feed, they have given way in great measure either to a type making use of the same general principle, the attrition mill, or to the chilled iron cylinders employed in "Hungarian roller milling." The attrition mill consists of two steel plates suspended with their faces vertical. These plates are set very close to each other and revolve in opposite directions. The faces of the plates are grooved or otherwise roughened and as they revolve at high speed they are extremely effective wherever they can be used.

The Hungarian system of roller milling is well called the "gradual reduction process," as its main point of difference from the old burr mill lies in the use of many sets of chilled iron rolls and the gradual accomplishment of what the older type of mill accomplished between the upper and the nether millstone, and in one step.

The modern American flour mill is now fairly well standardized. The first roller mill built in this country, that of Governor C. C. Washburn, was erected in 1878. The process was at that time by no means accepted as definitely adapted to our wheats. This is proven by the fact that when, during the first year of the operation of the new mill, one of the older mills of Minneapolis was destroyed by a flour dust explosion it was replaced by the customary stone burr. For about thirty years, however, American millers generally have been using the Hungarian process. It has been found particularly well adapted to the hard spring and hard winter wheats and, more latterly, to the durum type of wheat. While stone burrs produce a fair grade of flour from soft winter

ROLLS—THE LONGEST LINE IN THE WORLD.

wheats, the miller is not able to produce a satisfactory flour from hard wheats with such a mill. This is due to the fact that the stone burrs grind into flour practically all of the wheat kernel and a flour made from the entire hard wheat kernel on burrs is not fully satisfactory because of its high ash content and dark color. This objection is overcome by the employment of the "purifiers" which have been an integral part of the roller milling process, but have now been replaced in some mills by other specially designed machines to do the same work.

In the modern mill using the Hungarian process the rolls are of chilled iron, machined and polished to a mirror-like surface. They revolve on a horizontal axis and run in journals well adjusted and cared for, each set of rolls being housed in a wooden cabinet to guard against filling the air of the mill with flour dust. Each pair of rolls is held in proper adjustment by means of heavy spiral springs which furnish a certain amount of elasticity to the compression of the wheat and automatically compensate for any unevenness in the flow of grain or incomplete flour fed to them. The break rolls are separated, each from the other, by slightly less than the smallest diameter of the seed which is to be crushed while the finishing rolls very nearly meet. The sets in between, some six or seven in the average mill, are of varying distances of separation, the distance decreasing as the finishing rolls are approached. At every step the product is run through purifiers, the purpose of which is to draw off by means of drafts of air the light, fluffy flour and to detect and start back for re-grinding any particles of cracked grain larger than should be the case at the particular stage of the process at which the "purifier" is placed. That part of the product which passes through the screen is used as the feed for the set of rolls next in the series.

The force of gravity is made use of as much as possible in conveying the grain through a mill, although the modern blower handles all grains satisfactorily and economically and with but little regard for direction. In the future there may be more pneumatic handling of grain and flour than there will be of the older method of small metal buckets fastened to a flat-link chain running on sprocket wheels, or to a belt running on pulleys.

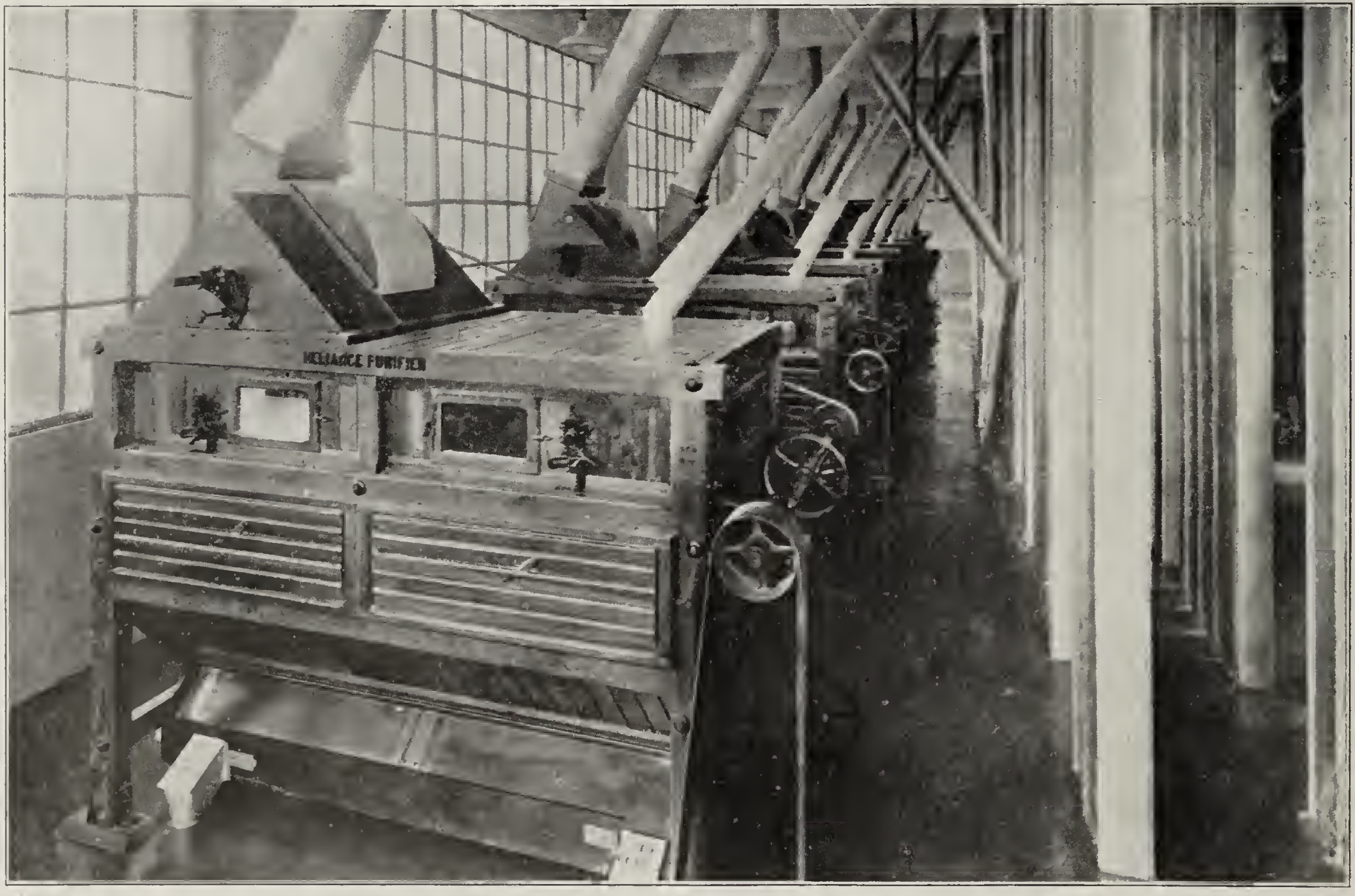
In blending flours the "worm" or screw conveyor is often used. This is a metal spiral revolving slowly in a circular box but little larger than its own diameter. By the use of an open bottom wedge-shaped hopper two or more sorts of flour can be fed simultaneously to the revolving worm and at the end of a journey of a dozen feet or so the blending is remarkably uniform.

Course of Wheat Through the Mill.

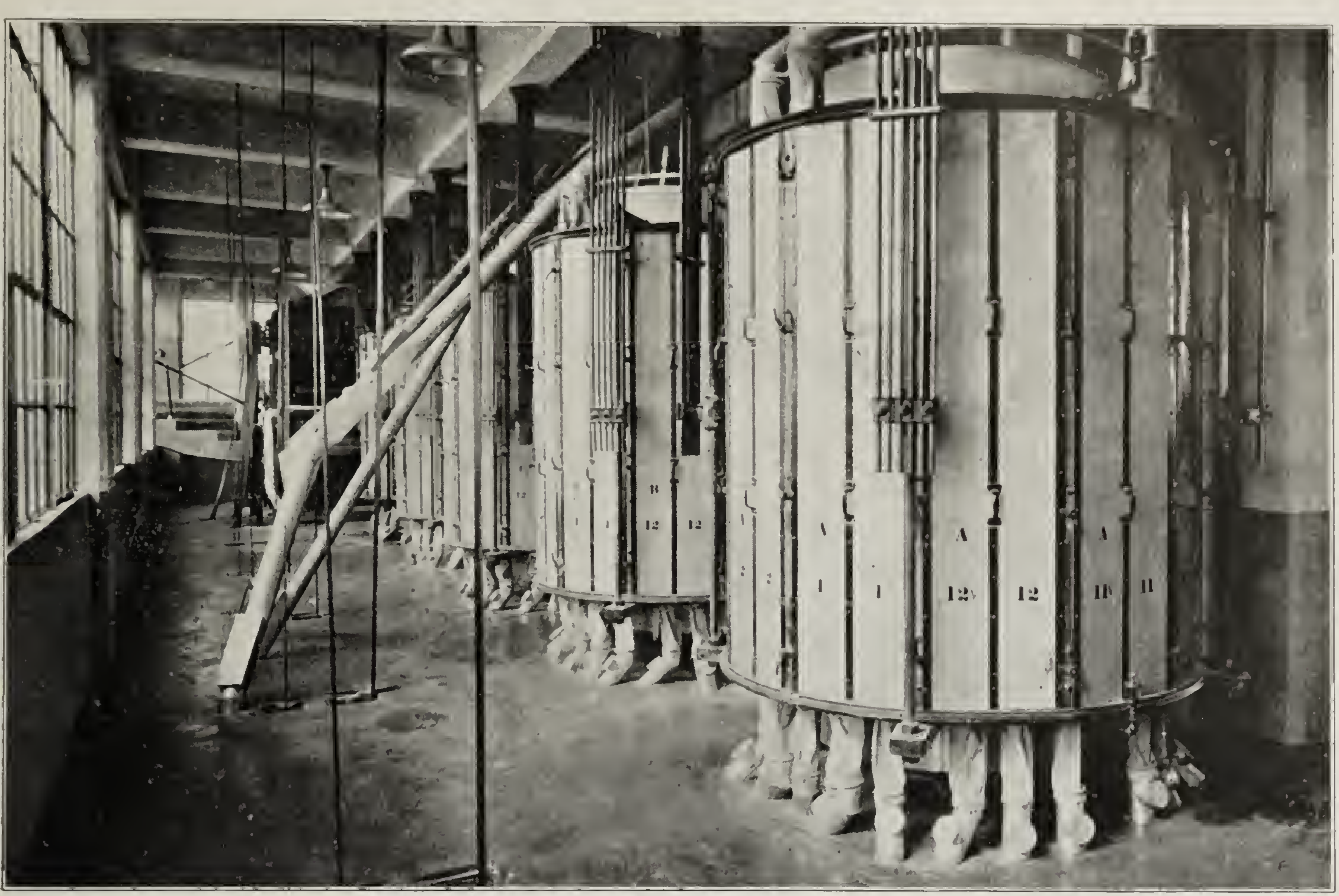
After the wheat has been received at the mill, it is run through separators which eliminate all particles *larger* than the wheat by allowing the wheat and any smaller particles of matter to drop through holes which are just large enough to permit their passage. This partially cleaned product is next run over plates pierced with holes a trifle smaller than the wheat, which results in the removal of all particles *smaller* than the wheat berry. Magnetic separators are used to catch any pieces of metallic iron, and it is surprising to see how many tiny bits of baling wire and other metallic fragments are obtained by the huge magnet over which the stream of wheat slowly passes. The particles removed by the sieve separators are for the most part seeds other than wheat such as cockle, mustard and dock.

The "beard" of the wheat kernel—the fine hairs at its smaller end—and the adhering dirt are removed by passage through brush or scouring machines especially designed for the purpose, which machines also remove by abrasion a small but appreciable part of the outer coat or bran.

The wheat in some mills is next run through washers where by means of water and brush-like attachments it is freed as nearly as possible from adherent dirt. It is then run into tempering tanks, which are large steel cylinders set upright. Here the wheat is soaked in tepid water until it is



PURIFIERS.



SIFTERS.

in such condition as to render its milling between metal rollers practicable. This "tempering," as it is called, of the wheat is a very important part of the process and upon its being done correctly depends in large measure the quality of the output.

From the tempering tank the wheat starts on its journey through the mill, the "first break" doing practically nothing more than to crack the wheat, which because of its shape splits longitudinally. A certain amount of true flour comes from the wheat at this break and it is drawn off by aspirators and is later introduced into the general stream. At this point also the "crease dirt"—the dust inevitably found in the little crack or crease in the wheat berry—is removed by pneumatic and sifting means and the purified cracked grain goes to the other "break rolls" and then to the first of the "reduction rolls." These are smooth and are set much closer together than are the "break rolls." It is at this stage that the product is subjected to the most significant separation of the entire series, the bran and germ being sifted out, the light, fluffy flour being drawn off by means of aspirators, and the "middlings" which are, as the term denotes, the middle part of the wheat kernel, started on their way through the series of rolls which is destined to produce the lightest colored flour. From this stage on the idea is to recover from the branny part of the wheat berry as much of the starchy flour as is possible, and, on the other hand, to reduce the "purified middlings" to tiny granules of practically uniform size freed, as far as possible, from any particles of bran. It is a test of the miller's capacity to maintain a low "starch content" in his "shorts," as the smaller particles of wheat bran are called. From the next set of rolls in the train is produced the very choicest of the flour and from there on the quality of the product decreases with each set of rolls. The number of rolls in a mill vary, but as a general thing the branny side of the kernel is run through about half as many sets of rolls as are the "middlings." Needless to say, the separation of the outer coat from the interior part of the berry is not absolute. There are tiny particles of bran in even the whitest "patent" flour; it is the finely divided bran that gives the brownish tinge to "clear" flours; branny particles of considerably larger size are known as "shorts"; and the bran itself in unaltered form is sifted out and sold as feed for stock.

The germ, being enclosed in a thin covering, is first flattened and then sifted out, the whole process being conducted in such a manner as to refrain from breaking the germ and thereby allowing its oil to become intermingled with the flour. The germ is generally handled separately from the bran, although there are certain types of feedstuffs in which both germ and bran are present.

Types of Flour.

It is customary in this country to divide the stream of wheat flour into three general divisions. The coarsest, dark-

DUST COLLECTORS. HEAD OF ELEVATORS AND MAN-LIFT TO THE LEFT.

est colored flour is called "low grade," "red dog" or other expressive names. This part constitutes from two to five per cent of the total flour stream. With the "low grade" taken away, the balance of the flour is known as "straight," which, in turn, is generally divided into "clear flour" and "patent flour." There are no hard and fast rules in regard to these divisions. Many mills turn out two or three different kinds of "patent flour" and "first" and "second clears" are well enough established to be quoted in the newspapers. All types of flour merge into each other by almost imperceptible degrees so that the dividing lines are largely arbitrary. There is, of course, a great difference between a high grade "patent" and the "red dog" or "low grade," but the difference between such brand names as "bakers' patent" and "fancy clear" is largely a trade distinction.

BRAN DUSTERS, REEL SPOUTS AND ELEVATOR LEGS.

While all parts of the wheat berry are edible, the flour known as "red dog," or "low grade," is not sold as such for bread making. It is used for cattle feed or as a binder for the sand employed in foundries, and for similar industrial purposes. The balance of the flour from the wheat kernel finds its way to the market. The distinguishing marks of "patents" and "clears" are, first, color and, second, the relative amounts of gluten and the quality thereof. The brownish yellow color of the "clear" is due to the fine particles of bran contained therein. There is not a great deal of "clear" flour sold by the retail dealer. Commercial bakers use great quantities of clear flour, its principal use being that of blending with rye flour in the manufacture of rye bread. The difference in the gluten content between "patent" flour and "clear" flour is of more practical importance. While there is more gluten in the "clear" flour than in the "patent," the quality of the gluten in the "patent" is better than that in the "clear." Gluten is the protein, or nitrogenous, part of the flour. Although all cereals consist largely of starch, in most of them are to be found small but highly important percentages of protein, fats, and mineral salts. While protein, as its name implies, is necessary for the support of life, and is the only part of the wheat berry that can make new tissue in the young, or repair old tissue in the adult, the most interesting thing about wheat protein is its physical nature. In the aeration of a loaf of bread, the gluten serves as a skeleton or framework which, first, as the carbon dioxide gas of fermentation permeates the mass of dough, forms a spongy medium, and, later, under the action of the heat of baking, hardens into the typical loaf of well risen bread. This is purely a matter of mechanics. It has nothing whatever to do with nutrition, except as a well aerated loaf of bread is more likely to be well chewed by the consumer, and thereby rendered more easily digestible. Although practically all cereals, with the exception of rice, contain appreciable quantities of the various proteins, wheat is the only one which contains the nicely balanced combination of glutenin and gliadin which together possess this mechanical quality of providing for the maximum aeration of the loaf. For that reason, a certain amount of wheat flour is absolutely necessary in all blends or mixtures of wheat with other edible cereals, and, as Dr. L. B. Mendel pointed out in his address before the Pan-American Congress in Washington in December, 1915, the most promising prospect for providing bread for coming generations is that of using mixed flours, drawing upon the whole list for sources of supply and in each case including enough wheat flour to provide "muscle" with which to aerate the loaf.

In addition to "patents," "clears" and "straights," the wheat miller produces "graham" flour. This is, or should be, the product of the entire wheat berry just as it comes from the kernel. It owes its name to a New England doctor whose digestive system was not all that it should have been and who found relief in the use of the coarse flour which now bears his name. Dr. Graham was something of a chemist and pointed out the fact, established by laboratory experiment, that there was more protein ingested in the form of graham flour than was the case in the more highly refined flours. Unfortunately he overlooked the fact that his technical results were based upon chemical methods involving the use of concentrated sulphuric acid, metallic mercury and intense heat—none of which are found in the human digestion. The claimed amount of protein was in the flour, without doubt, but it was not in such shape as to be absorbed by the human system. It was not until Dr. W. O. Atwater, and others, proved by painstaking experimentation with human subjects that the co-efficient of absorption of roughage was so low as practically to negative Dr. Graham's claim, that graham flour was put in its proper place in the dietary, which is that of a medicinal agent to be used, as the doctors term it, "when indicated." What has been said of "graham" flour applies to "all wheat flour," which is now defined by common consent as all of the wheat except the bran—something of a misnomer, as a moment's reflection will show; "bran flour," which is generally a "clear flour" into which has been run a part of the contents of the bran bin; and others of the same sort so highly prized by those suffering from constipation. Germ flour is occasionally found on our markets; it is in high favor in Great Britain, and it is perhaps unfortunate that it is not better known in this country, as it is highly nutritive, easily digested and palatable.

Gluten flour is theoretically the gluten element in flour. As the records of the prosecuting arm of the Department of Agriculture indicate, it is all too often a "clear," high in gluten. The standard recommended by the Association of Official Agricultural Chemists is that such flour must contain 35 per cent of protein. It is used to a considerable extent by diabetics and others whose peculiarities of digestion render a starchy diet inadvisable.

The blending of wheat flour with other starchy substances has been experimented with off and on for a number of years. Recently a miller in the west put together a synthetic flour composed in part of wheat flour and in part of pure corn starch. The resultant flour, both chemically and technically, was up to the standard of high grade soft winter wheat "patent" flour, the sort of flour which is sold in cartons as "cake flour" and for which a fancy price is demanded and obtained. Nothing is being done with this synthetic flour as its manufacture runs athwart the crippling regulations of the mixed flour law—a relic of early days which go back to the time preceding the passage of the Food and Drugs Act.

Rye.

Rye, being botanically a first cousin to wheat, is, as might be expected, milled in a manner almost identical with that grain. The great difference between rye and wheat is that while the former contains a fair proportion of protein, it does not contain the peculiar combination of glutenin and gliadin which bring about a well risen loaf of bread. By blending rye flour with a strong wheat flour, as is done in commercial bake shops, an excellent loaf of wholesome bread is produced. Rye flour, as such, is sold in this market under two general classifications, "light rye" and "dark rye," the "light rye" corresponding approximately to "patent" flour in the wheat industry, and the "dark rye" to "clear" flour. "Pumpernickle" is whole rye flour, corresponding exactly to graham flour in terms of wheat milling.

Corn.

The milling of corn is a simpler process than the milling of wheat. In general the same types of machines are used, although, owing to the difference in the size of the kernels, their adjustment is slightly different, especially in the first sets of rolls.

Most millers who grind corn produce "hominy," "grits" and "corn flour," the first named being the kernel freed from its bran and germ, "grits" corresponding to "middlings," and "corn flour" being the finely divided product made by pulverizing "grits."

As corn flour, which contains about the same amount of protein as does wheat flour, is always considerably cheaper than the latter and, as it has often been demonstrated that a mixture of 15 per cent corn flour and 85 per cent "patent" wheat flour makes just as nutritious bread with fine flavor and color as bread baked from unmixed wheat flour, the use of corn flour for blending with wheat flour is increasing steadily. Bakers and housewives are enabled to save nearly a dollar a barrel by using such flour—a point well worth considering at times like these when the high cost of living is a vital matter with those who are forced to practice economy.

"Grits" are used extensively in the fermentative industries, as corn lends itself well to alcoholic fermentation. Exhaustive research in that highly scientific branch of the food industry has shown that malted barley contains sufficient diastase to change to sugar more starch than the barley itself can supply and, in consequence, other farinaceous cereals, such as corn or rice, are added to the mash until the diastase is given all the starch it can handle.

The adding of corn or rice to barley malt at the time of fermentation is strictly analogous to the adding of starch or starchy flours made from grains other than wheat to wheat flour in the manufacture of mixed flour, except that in the first instance there is involved a chemical reaction and in the second instance a physical reaction.

Other products of the milling of corn include the oil from the germ, a most excellent edible oil which for baking purposes seems to stand midway between lard and cottonseed oil. The similarity to lard is recognized in the fact that certain chemical tests cannot be used to distinguish lard oil from corn oil, which the analyst explains by the fact that swine are fed on corn and carry through their process of metabolism certain characteristics of the cereal upon which they subsist. The outer coat of the corn kernel is sold as stock feed, as is "oil cake," the part of the germ left after the extraction therefrom of the oil.

Buckwheat.

While not a true cereal, buckwheat is generally handled as are the cereals, the flour produced being of excellent quality and great nutritive value. Because of its high oil content, it is most popular during the season of cold weather, and among those whose work is in the out-of-doors. The manufacture of flour from buckwheat is not essentially different from that of wheat flour, although it is seldom reduced to as fine a state of division as is wheat flour. It is often found in the retail markets in the form of "pancake flour," which is a compound containing the chemicals necessary for aeration.

Rice.

Rice makes an excellent flour. It is the basic food of more people than any other known cereal and when well balanced, as all cereals should be, by the requisite amount of protein, it produces a very sturdy class of consumers, as the easy victory of the fish-and-rice-eating Japanese over the meat-eating Russians some years ago amply testifies.

Oats.

Oats, while not often seen in the form of flour, is occasionally reduced to a sufficiently fine state of division to be given that title. Because of its nature the oat seed offers difficulties in milling by the wheat system. The oat is remarkable for its high oil content and for that reason, if for no other, is a most valuable cereal. As generally served in the form of flakes made by crushing the oats between heated rolls and later well softened by long continued soaking in the home kitchen, oatmeal porridge is a valuable dish whose nutritive elements are easily absorbed by the system during the process of digestion and which carries with it enough roughage to insure good elimination.

Of late there has been considerable discussion of the drought-resistant, non-sweet sorghums. This includes such varieties as kafir, milo, durra, feterita and kaoliang. They grow luxuriantly in warm climates and as they send a tap root down to water with but little regard for the distance it is necessary to go, they are able to withstand periods of drought that would utterly destroy corn or other cereals. Much experimental work has been done in the milling of these food products and they will undoubtedly be heard from as days go by. With a certain amount of wheat flour employed as an adjuvant, they make excellent risen bread.

Cotton Seed Meal.

Cotton seed meal, while not a cereal either botanically or by chemical characteristics, being high in protein, is a form of flour for which the southern States are demanding recognition. Mixed flours containing cotton seed meal have been assembled, with a resultant product relatively high in protein and one which is better balanced from a nutritive point of view than is any flour coming from any one cereal.

Many Kinds of Flour.

Thus it will be seen that the manufacture of flour, while expressed in terms of the aristocrat of all cereals—wheat—encompasses many of the products of our fields. By the proper mixing of two or more cereals, using wheat flour as the base, it is possible and probably will be for all time, to supply our population with the raw material for their daily bread. The monopoly of bread-making flours, which has for so many years been maintained by the producers of wheat flour, was the perhaps natural result of pioneer conditions under which the question of the acreage devoted to cereals was not of great importance. Now, however, with the knowledge that wheat is limited, both as to possible increased geographic distribution and also in the matter of bushels per acre, it is no more than wise to examine into the claims of all other farinaceous cereals, many of which will stand inclemencies of weather that would destroy wheat, many of which show greater yield per acre, and all of which are entitled to respectful consideration when offered in the form of a properly mixed flour, so labeled that the consumer may know how to handle the product when it is put to that most crucial test—the bake oven.

Shredded Wheat Now Made in California.

The Shredded Wheat Company has recently completed a large plant in Oakland. Beginning December 10, the Oakland factory will supply the shredded wheat sold in the Pacific coast market and will also make shipments as far east as freight rates will permit.

Specialty Administrative Officers Appointed.

Mr. Chas. Wesley Dunn has been reappointed counsel for the American Specialty Manufacturers' Association, and Mr. H. F. Thunhorst national secretary for the year 1917.

New Zealand Flour Milling Industry.

There are in New Zealand 66 flour mills employing 424 men, to whom wages are paid to the value of about $243,325. The approximate value of the buildings, machinery, etc., is $2,324,824, and the annual output about $8,083,125 per annum. The mills are equipped with up-to-date machinery and excellent flour is turned out. In 1914 flour to the value of $477,559 was imported, of which Australia supplied practically all.

Laboratory Control in Wheat Flour Milling

By H. V. Cadwell

The sole object of scientific control of any manufacturing process is to produce a product of the highest quality at the minimum expense. There are few fields in which the chemist can become of greater value than in that of the flour milling industry. He exerts his influence first in the purchase of the grain by determining the yield and quality of flours it will produce and later in regulation of the milling process so that the maximum amount of marketable product is obtained.

Wheat buyers value a grain according to its plumpness and hardness, which are physical indications of the approximate percentages of flour and moisture in the grain. The chemist actually separates these constituents from the grain, measures them and tells the dealer to the fraction of a penny what is the commercial value of any sample of wheat. There is no guesswork about it.

The following table, by C. H. Bailey, taken from Minnesota Agricultural Experiment Station Bulletin 131, shows clearly how the value of wheat may vary:

VALUE OF MILL PRODUCTS FROM ONE BUSHEL OF WHEAT WITH FLOUR AT $5.25 PER BARREL AND MIXED FEED AT $25 PER TON.

Flour, %.	Feed, %.	Total Value.
60	38	$1.252
65	33	1.295
70	28	1.338
75	23	1.381

TESTS ON WHEAT SAMPLES.

Moisture.

The official moisture tester of the United States Department of Agriculture, as described in Bulletin 99 and Circular 72 of the Bureau of Plant Industry, is the Brown-Duvel tester. This apparatus consists of a heating chamber divided into compartments for testing a number of samples at a time; a cold water tank through which condenser tubes pass; burners; thermometers; special side neck flasks; graduated cylinders and an automatic oil measuring and grain separating device. The method is very simple as it consists merely in boiling a weighed sample of the grain in the side neck flask with a special heavy oil. The moisture is distilled off into the condenser where it condenses and drips into the graduated vessel. *The amount of water collected divided by the weight of the sample and multiplied by 100 gives the percentage of moisture in the sample.*

Milling Yield.

The wheat is tempered according to its natural moisture and hardness and ground in a small laboratory mill, duplicating the milling process of the main plant as nearly as possible. *After separating the bran and shorts, the total flour is weighed and the percentage calculated on the original wheat.* Records are usually kept during this milling of the percentage of bran, shorts, clear flour, middlings flour, total flour and loss of milling. The middlings flour is then subjected to chemical and baking tests to determine its quality.

Crude Protein.

The crude protein is determined in both the wheat and the middlings by the Kjeldahl-Gunning method for nitrogen, multiplying this value by the factor 5.7. This method has been adopted by the American Association of Agricultural Chemists as the official method of determining the "strength" of wheat or flour and is as follows: The whole wheat is ground to pass a 60-mesh sieve and is thoroughly mixed. A sample of 1 gm. of this meal is placed in a 500 cc Kjeldahl flask with 12 gms. of powdered potassium sulphate and about 12 cc of concentrated, chemically pure sulphuric acid. The mixture is then heated over a burner until the liquid becomes clear or pale straw color. This will require about an hour and a half of vigorous boiling. The flask and contents are then allowed to cool somewhat, diluted with about 150 cc of distilled water and then neutralized with strong sodium hydroxide solution, using a few drops of phenolphthalein solution as an indicator. The Kjeldahl flask is then connected by means of a distilling head to the condenser of the Kjeldahl distilling apparatus. The glass delivery tube connected to the lower end of the condenser tube is then dipped into a 500 cc Erlenmeyer flask containing 25 cc of tenth normal sulphuric acid which have been measured accurately and colored with 2 or 3 cc of cochineal solution. The distilling is commenced after adding a few pieces of granular zinc to the contents of the Kjeldahl flask. After all the ammonia has distilled over into the sulphuric acid, which is usually the case when 150 cc of distillate have been collected, the Erlenmeyer flask is removed and its contents titrated with tenth normal sodium hydroxide solution. The volume of sodium hydroxide solution used, subtracted from the 25 cc of tenth normal sulphuric acid, gives the amount of sulphuric acid consumed by the ammonia from the wheat. The number of cubic centimeters of tenth normal acid consumed multiplied by 0.0014 gives the amount of nitrogen in the wheat. This value multiplied by the factor 5.7 gives the amount of protein in the wheat from which this nitrogen was derived, or *each cubic centimeter of acid consumed is equivalent to 0.0798 per cent of protein.* The burette reading multiplied by 0.8 is generally considered sufficiently accurate for routine work.

The tests on the middling's flour from the milling test on the wheat are carried out in exactly the same manner as the following tests on the regularly milled flour.

TESTS OF FLOUR SAMPLES.

Color.

Color is judged by comparing the sample at hand with comparatively fresh samples of flour made from wheats of known quality. In the case of flour milled from hard spring wheat the most desirable color is a very light cream, whereas patent flour from soft winter wheat is very nearly dead white. In either case a high grade patent is arbitrarily chosen as the standard and given a value of 100 on the scale and a flour, generally a clear, priced on the market at perhaps 80 per cent of the value of the patent, is correspondingly given a value of 80 on the color scale. Blends are made by combining carefully weighed portions of the two flours, the color value in each case corresponding to the relative amounts of high grade and low grade flour going to make the blend. For instance a blend of equal amounts of the flour given 100 on the color scale and of the flour given 80 on the color scale are given a value of 90 on the color scale; one of 75 parts of the better flour and 25 parts of the less expensive flour are given a value of 95. It is customary constantly to keep on hand a full set of color samples mixed frequently and at all times protected from the action of the light and with a separate color for approximately every 2½ per cent of the market quotations from first patent to clear flours. Color is rated on the flour in what is known as dry, dipped, dough and bread state. A sample of the flour under test is placed on a glass plate, rubbed smooth with the metallic "slick" and one side of the sample squared off. A sample from the color scale is treated in the same manner and the squared faces of the samples placed together. The whole is reslicked. If the colors differ materially it is indicated by a sharp dividing line between the two samples and the test is repeated until the flour under test is exactly matched by one or another of the color scale blends. This is termed "dry color." The glass plate containing the two flour samples is then dipped in water and dried in a drying oven. The composite "slide" is again judged and recorded as "dipped color."

Samples of dough cut from the loaves of the flour under test and the control sample just as they are put in the baking pans, are compared by laying them side by side on a glass plate with the fresh surfaces down, then pressing another plate on top and viewing the fresh surfaces through the glass. This comparison gives the "dough color." After baking, the color of the bread is compared and recorded as the "bread color."

Absorption.

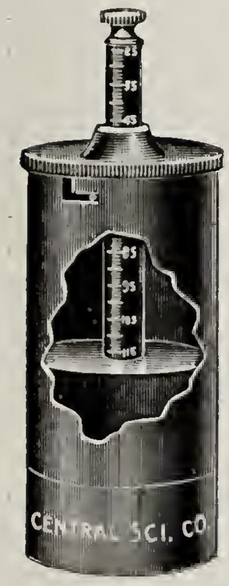
After color the next most important test is the absorption test, which tells the chemist the amount of water to use in making up his dough for the baking test. This is accomplished by adding small quantities of water to 30 grams of the flour from a burette and mixing until a suitable dough is obtained. *The amount of water divided by the* 30 *grams of flour multiplied by* 100 *gives the percentage of absorption.* For hard wheats an average value is about 63 per cent. The amount of absorption is of importance from the commercial standpoint, as the more water absorbed by the flour the more bread will it produce.

Protein.

Protein is determined in the flour by the Kjeldahl-Gunning method as described before, or by washing out the protein as gluten. In flour the larger part of the protein is present as gluten which may be obtained in a fairly pure state by washing away the starch and soluble matter from the flour. Thirty grams of the flour are made into dough in a cup and covered with water. After standing one hour the dough ball is removed and washed under a hydrant until all the starch is removed. This is accomplished by working the dough with the hands in the stream of water over a screen of bolting cloth, being careful not to allow any particles of the dough to get away. The gluten ball is returned to the cup of water and left 15 minutes longer, at the end of which period the ball is given another washing and then dried by gently pressing between the fingers. This is then placed on a dried and weighed piece of cardboard and weighed. *This weight divided by* 30 *and multiplied by* 100 *gives the percentage of wet gluten.* The card and gluten are then dried in a drying oven at 100° Centigrade until it ceases to lose weight. *The weight of dry gluten divided by* 30 *and multiplied by* 100 *gives the percentage of dry gluten in the flour.*

During the washing the physical properties of the gluten such as color, elasticity and hardness are noted. A good gluten should be firm, elastic, creamy white and not unduly sticky.

A very fair indication of the quality of the gluten may be obtained simply by the use of the small baking cylinder illustrated herewith. This piece of apparatus consists of a separable copper cylinder provided with a plunger whose piston is graduated so as to represent the volume of the cylinder, in cubic centimeters. When in use a small amount of dough, generally 25 gms., is placed in the cup which forms the lower part of the cylinder, and the capacity of which is 25-cc. This miniature loaf of bread is then permitted to rise and after a certain length of time is placed in a "quick" oven, the reading of the piston at the time of placing the cylinder in the oven being noted. The additional height to which the piston is driven by the expanding loaf during baking represents the expansive force of the gluten in the flour. Comparative results obtained by the use of this instrument run parallel to qualitative gluten tests obtained by much more tedious methods.



BAKING CYLINDER.

Acidity.

Unsound wheats that have fermented, or soured, in storage will contain more than a normal amount of acid. A determination of the percentage of acid will give a measure of this unsoundness. Extract 18 gms. of flour with 200 cc. of cold, distilled water which has had the carbon dioxide removed by boiling for 90 minutes. The flask is shaken frequently through this period and finally allowed to settle for 30 minutes. The supernatant liquid is decanted into a filter until 100 cc. of the clear filtrate is obtained. This 100 cc. sample of the flour extract is then titrated with twentieth normal potassium hydroxide. Phenolphthalein is used as an indicator and the results are stated as per cent of lactic acid. Following the above method *each cubic centimeter of twentieth normal potassium hydroxide is equivalent to* 0.0045 *gm. of lactic acid,* or 5/100 of 1 per cent.

Ash.

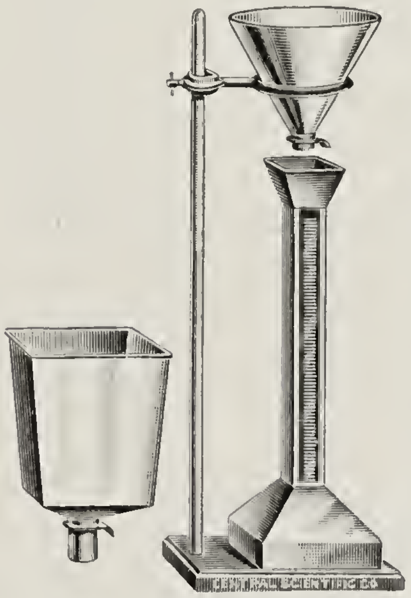
The ash determination on flour is of value mainly as an indication of the cleanness of the flour. A good flour should contain about 0.35 per cent ash. The amount of ash is determined by weighing 5 gms. of the flour into a weighed crucible and burning off the organic matter at a dull red heat. The ignition is repeated until the weight of ash is constant. *The weight of inorganic residue multiplied by* 20 *gives the percentage of mineral matter in the flour.*

Baking Test.

The following formula is used considerably, but some laboratories modify it by adding 8 or 9 gms. of shortening:

Flour	340 gms.
Sugar	15 gms.
Yeast	10 gms.
Salt	4 gms.
Water, as determined from absorption test.	

The yeast is added to half of the water and the salt to the other half. The sugar and flour are mixed and then the solutions of yeast and salt. It is best to mix the dough in a mechanical mixer in order that all doughs may be mixed in the same manner. When the dough has been thoroughly mixed it is placed in a jar and placed in a fermentation cabinet. At the end of 45 minutes the dough is removed from the jar, kneaded lightly and returned to the cabinet. This operation is repeated 15 minutes later, and again 75 minutes from the time it was first placed in the cabinet. The dough is then moulded into a loaf and placed in the baking tins. For a dough approximating 575 gms. the tins should have the following dimensions: 3½" by 6½" at the top, 3" by 5½" at the bottom and 5½" deep. The dough is allowed to rise until gas bubbles appear on the surface and is then baked at 195° Centigrade. About 30 to 35 minutes are required for most loaves. The cooled loaves are weighed and their volume determined by displacement of flax seed in the apparatus illustrated. The texture, color, odor and volume are scored on the finished loaf.



DEVICE FOR MEASURING THE SIZE OF LOAF.

Equipment.

The following list of materials will be necessary to equip a flour mill where six samples are to be run at a time:.

Moisture Tests.

Electric drying oven, with constant temperature regulator, inside space 7"x6½"x10"	$60.00
Moisture tester, Brown-Duvel, 2 compartments	35.00
Moisture cans, 2"x⅞" of aluminum, with top	.15
Desiccator, 8"	4.00
Desiccator plate, 7½"	1.80
Thermometer 212° F.	1.00

(For grinding mill, sieves, balance and weights, crucible tongs, spatulas, cork and rubber stoppers, see list of general supplies.)

Ash Tests.

Electric muffle furnace, inside space 3⅛"x 2½"x5"	$47.00
Porcelain crucibles, No. 0	.27

Nitrogen Tests.

Digesting shelf, for six determinations	$15.00
Condenser	22.00
Kjeldahl flasks, 50 c.c., Pyrex glass	.40
Rubber stoppers, 1 hole	.10
Kjeldahl connecting bulbs	.60
Erlenmeyer flasks, 500 c.c., Pyrex glass	.27
Burette, 50 c.c. in tenths, for pinch clamp	1.00
Pinch clamp	.08

(For rubber tubing, see list of general supplies. For hydrochloric and sulphuric acids, barium chloride, sodium hydroxide, mercury, mercuric oxide, potassium permanganate, granulated zinc, pumice stone, potassium sulphide, potassium sulphate, paraffine and cochineal, see list of chemicals.)

Gluten Tests.

Gluten bowl, $0.11; Gluten Cup	$ 0.15
Spatula, for gluten mixing	.68
Sieve, without bottom, with brass ring for bolting cloth	.72
Bolting cloth, phosphor bronze wire, 40" wide, No. 120, 96 mesh; per foot	3.38
Watch glasses, 3½", for weighing gluten; per dozen	1.08
Zinc plates, 2½" square, for gluten weighing; per set of 12	1.00

Acidity Tests.

Erlenmeyer flasks, Pyrex glass, 500 c.c.	$ 0.29
Filter paper, 4"; per package of 100	.18
Funnel, 3"	.26
Graduated cylinder, 200 c.c.	.75
Pipette, 100 c.c.	.50
Burette, 50 c.c. in tenths, for pinch clamp	1.00
Pinch clamp	.08
Volumetric flask, 100 c.c.	.85
Steam heated automatic still	28.00
Burette stand	2.25
De Khotinsky constant temperature water bath; capacity, 3 liters	45.00

(For sodium hydroxide, phenolphthalein and alcohol, see list of chemicals.)

Baking Tests.

Fermentation jar, 1 gallon	$ 0.40
Mixing crock, ½ gallon	.30
Volumetric flask, glass stoppered, 1000 c.c.	1.25
Sponge case, Despatch electric, 48"x24"x14"	40.00
Graduated fermentation jar	2.25
Electric baking oven	43.25
Volume of loaf apparatus	25.00
Baking pans, No. 7, per dozen, $1.00; No. 48, per dozen	1.50
Spatula, 6", for mixing doughs	.45

General Apparatus.

Apron	$ 0.72
Balance, analytical	54.00
Balance, bakers' scale	7.20
Weights, precision	17.00
Beakers, in nest, Nos. 1 to 4	.74
Bottles, dropping	.17
Bottles, reagent, 4 oz.; per dozen	2.25
Brush, burette	.10
Brush, camel's hair	.15
Brushes, test tube; per dozen	.50
Burner, Bunsen	.30
Burner, Tyrrill's	1.00
Clamp, burette	.30
Clamp holder	.16
Corks, Nos. 0 to 11, assorted; per gross	.45
Cork borers	.90
Filter paper, 4"; per package of 100	.18
Forceps, steel, 5"	.09
Jar for distilled water; 5 gallon	2.00
Labels	.08
Mill	6.00

Mortars, porcelain, with spout and pestle; glazed outside, rough inside—
Outside diameter,

mm.	80	110	130	150	175	260
Each	$0.20	$0.40	$0.50	$0.70	$0.90	$2.23

Paper, litmus, blue; per quire	0.60
Paper, litmus, red; per quire	.60
Sieves, set 10 mesh to 200 mesh	10.80
Stoppers, rubber; per pound	1.60
Spatulas, 5"	.35
Support, funnel	.72
Support, test tube	.38
Tongs	.20
Tubing, glass; per pound	.44
Tubing, rubber; per pound	1.50
Wire gauze, asbestos center, 5"x5"	.09

Chemicals.

6 lbs.	Hydrochloric acid, C. P.	$ 1.00
9 lbs.	Sulphuric acid, C. P.	1.15
1 gal.	Ethyl alcohol (95%)	4.00
4 lbs.	Ammonium hydrate, C. P.	.80
1 lb.	Barium chloride, C. P.	.55
1 lb.	Calcium chloride (anhydrous, for desiccators)	.27
1 oz.	Cochineal (powdered)	.14
1 lb.	Mercury (metal.)	2.10
1 oz.	Mercuric oxide, C. P.	.32
1 oz.	Methyl orange	1.90
1 lb.	Paraffine (soft)	.13
1 oz.	Phenolphthalein	2.00
1 lb.	Potassium acid sulphate, C. P.	1.30
1 oz.	Potassium permanganate, C. P.	.30
1 lb.	Potassium sulphide, C. P.	1.80
1 lb.	Pumice stone (lumps)	.13
5 lbs.	Sodium hydroxide (sticks, pure)	2.60
1 lb.	Zinc (granular) C. P.	.70

Bonuses and Wage Increases.

The Standard Oil Company has announced that in order to aid their employes not included in the general wage advance already made, the board of directors has authorized bonus payments to all such employes in the United States receiving less than $3,000 a year, as follows: Twenty per cent to employes receiving $1,000 or less, 15 per cent to employes receiving from $1,000 to $2,000, and 10 per cent to employes receiving from $2,001 to $2,999. The directors of Morris & Company have authorized a contribution of $175,000 to the pension fund and one of $60,000 to the Benefit Association of their employes. The Corn Products Refining Company has announced a voluntary wage increase, averaging from 10 to 17 per cent for the employes at their Argo plant. For the lowest paid employes the advance is the greatest, a minimum of 25c an hour for the men and 18½c for the women being established. It is understood that similar increases for their Pekin and Granite City plants will be announced shortly.

Net Weight Law Disregarded.

The officials in charge of the enforcement of the Food and Drugs Act report that inspectors have found several interstate shipments of packages of fruits and vegetables such as grapes, tomatoes, and berries which contain no statement on the packages as to the quantity of contents. Shippers who violate the net weight amendment to the Federal Food and Drugs Act by failing to mark the quantity of the contents of each package of fruits and vegetables they ship into interstate commerce are liable to criminal prosecution.

Feeding the Yeast in Bread Making

By H. A. Kohman, Ph. D.,
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THE yeast cake, with which every baker and housewife who makes bread at home is so familiar, is far more complex than is commonly recognized. It is composed of millions of cells so small that four thousand of them placed side by side measure only an inch. Each little cell, however, is a living organism capable of independent existence and endowed with the power of reproduction. Under suitable conditions, the rate of reproduction is extremely rapid, so rapid, indeed, that each cell may form another every thirty minutes. Each new cell, like the parent cell, is capable of further reproduction and it has been calculated that if there were no limit to the food supply and growth were not curtailed by prohibitive by-products, the progeny of a single cell would, within a week, literally fill the oceans.

In order that yeast may thrive and multiply, however, it must be properly supplied with food. Like higher plants and animals as well, it requires a variety of nutrients, as carbohydrates, proteins or nitrogenous food, and suitable mineral matter. It is well recognized that certain soils must be supplied with lime salts, in order to support plant life, while others are deficient in nitrogenous material; and it is customary to supply the latter through the addition of ammonium salts. It is well known, also, that aeration of the soil is highly beneficial and it is common practice to disk or harrow farm land several times after plowing in order to increase the porosity and allow the air to penetrate and diffuse through it. Like higher plants, yeast requires these same elements to a considerable extent, in order to do its work properly.

It is essential, therefore, in any industry that involves a fermentative process to supply the yeast with the required nutrients. This is recognized in the brewing industry, and in the brewing of certain famous ales it is common practice to add mineral salts to hasten the fermentation and to improve the quality of the ale. One of the mineral salts that should be mentioned especially in this connection is calcium sulfate, as it is used extensively in the brewing of ales. The use of this salt depends very largely upon the character of the natural waters employed for brewing. The famous Burton ales are brewed from natural water that is especially rich in sulfate of lime (calcium sulfate) and it is the presence of this salt that has given those ales the qualities that have made them famous. This fact has been recognized and it is possible to brew similar ales in other localities by the addition of calcium sulfate to harden the water properly.

In the manufacture of bread, also, it has been found that the water plays an important role. It was observed that the bread in a chain of bakeries, although made by the same formula and from the same raw materials, which were purchased at a central office, was different in character. This was due to differences in the natural waters employed. Upon investigation, the difference was found to be due largely to the degrees of hardness of the waters, with special reference to the presence and state of combination of lime salts. If the water contains the sulfate or chloride of lime, it is particularly favorable, but if the lime occurs as the carbonate, which neutralizes the slight acidity desired in bread dough as other alkalies do, the water is unfavorable.

For certain reasons the presence of lime in the water used for bread-making purposes is even more important than in brewing. White flour is highly refined and practically all of the outer part of the grain is removed. Unfortunately the bran contains by far the greater part of the lime of wheat, and white flour is decidedly lacking in this important substance. As a matter of fact, the flour which constitutes the greater part of the wheat contains only 3/14 of the lime, 11/14 going into the bran and other stock feed. In brewing, practically all of the grain goes into the mash and the yeast has access to a much greater supply of lime and other mineral salts. In the light of this, the importance of lime in the water for bread-making becomes apparent. The differences observed in the effect of natural waters led to direct addition of lime salts to the water used in bread. Various salts were tried, such as the sulfate, phosphate, lactate, chlorides and others, and it was found that they all had a decidedly beneficial effect. The following series of experiments with calcium chloride may be taken as typical of the calcium salts.

THE EFFECT OF CALCIUM CHLORIDE IN BREAD.

Bread No.	Calcium Chloride	Volume.	Per Cent Increase.	Gas.	Per Cent Increase.
609	0.0 grams	1830 cc	0.0	348 cc	0.0
610	0.5 grams	1935 cc	5.7	361 cc	3.7
611	1.5 grams	2040 cc	11.4	380 cc	9.1
612	2.5 grams	2070 cc	13.1	393 cc	12.9
613	3.5 grams	2090 cc	14.2	391 cc	12.3
614	4.5 grams	2110 cc	15.3	385 cc	10.6

It will be noticed that there is a pronounced increase in loaf volume and in the rate of gas production with the use of this salt, demonstrating clearly the accelerating effect upon the yeast. There was also an improvement in the general character of the bread. The color, texture and bloom were improved and the loaves were superior in every way.

The beneficial effects due to the use of calcium salts in bread led to an investigation of a great many other substances. The supply of available nitrogen was given particular attention. One of the materials that was first experimented with was a sample of glutamic acid that had previously been prepared from wheat gluten. Naturally, it was a matter of considerable interest to determine what effect it would have both upon the yeast and the parent substance gluten in bread. It was found to exert a distinctly beneficial effect upon the yeast, accelerating the fermentation and increasing the loaf volume. Other nitrogenous materials, such as peptone, were found to give similar results, but as these are mostly expensive, cheaper materials were sought. The solution of the problem was found in ordinary "sal-ammoniac," or ammonium chloride. This substance supplies the nitrogenous nutriment for the yeast and answers all the technical requirements. Below is given a typical series of experiments, showing the accelerating effect of this salt upon the yeast and the increase in loaf volume:

AMMONIUM CHLORIDE IN BREAD.

Bread No.	Ammonium Chloride.	Volume.	Per Cent Increase.	Gas in 7½ hrs.	Per Cent Increase.
646	0.0 grams	1630 cc	0.0	292 cc	6.5
647	0.5 grams	1790 cc	9.8	311 cc	6.5
648	1.5 grams	1865 cc	14.4	310 cc	6.5
649	2.5 grams	1870 cc	14.7	329 cc	12.6
650	3.5 grams	1930 cc	18.4	328 cc	12.6
651	4.5 grams	1900 cc	16.5	338 cc	15.7

With ammonium chloride, also, there was a marked improvement in the texture, color, bloom and general appearance of the bread.

When the differences between the raw materials in brewing and baking are taken into consideration, the accelerating effect of available nitrogenous material upon the yeast is not surprising. Wheat flour is prepared by a purely mechanical process and the various constituents are not changed chemically; consequently, the nitrogenous substances of the dough batch do not supply the nitrogenous nutrition for the yeast. In the brewers' wort, however, the constituents of the grain are rendered soluble by the process of malting and subsequent digestion, and the nitrogen of the grain is rendered available as yeast food. In bread dough, there is a deficiency of available nitrogen, which explains the beneficial action of ammonium chloride and other ammonium salts.

As both the calcium salts and ammonium chloride were found to have such desirable effects in bread, it became a matter of great interest to determine the effect of the two together. For this purpose, a series of experiments was made using a constant quantity of ammonium chloride and varying amounts of calcium chloride. As both salts have such a pronounced effect upon the fermentation, only 70 per cent of the usual quantity of yeast was used with the chemicals in this series of experiments. The results are given below:

AMMONIUM AND CALCIUM CHLORIDES IN BREAD.

Bread No.	Ammonium Chloride.	Calcium Chloride.	Volume.	Per Cent Increase.
548 (control)	0.0 grams	0.0 grams	1800 cc	0.0
549	0.5 grams	0.0 grams	1800 cc	0.0
550	0.5 grams	0.5 grams	1985 cc	10.1
551	0.5 grams	1.5 grams	2050 cc	13.9
552	0.5 grams	2.5 grams	2065 cc	14.7
553	0.5 grams	3.5 grams	2115 cc	17.5
554	0.5 grams	4.5 grams	2120 cc	17.7

It will be noticed that the calcium chloride increases the loaf volume over and above that obtained with ammonium chloride alone. This demonstrates that the salts may be used very advantageously together, which is to be expected, as one supplies a deficiency in lime and the other serves as a source of available nitrogen for the yeast.

In general, bakers' bread is light enough—if not, indeed, too light—hence the increase in volume *per se* has no particular advantage. The increased activity of the yeast, due to the added salts, can best be taken advantage of by either shortening the time of fermentation or by effecting economies in the amount of yeast required. As most modern processes are comparatively short already, the greatest advantage can be obtained by reducing the amount of yeast ordinarily necessary.

In order to determine how much yeast can be saved by the addition of calcium and ammonium chlorides, a series of baking experiments was made, using varying quantities of yeast. The amount of yeast used was varied from 30 to 60 per cent. less than that required in the control dough. The details of the experiments are given in tabular form below:

SAVING OF YEAST WITH BOTH AMMONIUM SULPHATE AND CALCIUM CHLORIDE.

Bread No. (Control.)	Calcium Chloride, Grams.	Ammonium Chloride, Grams.	Yeast.	Fermentation in Hours: 3½ Volume in cc.	4½	5½	Average cc.	% Increase.
555	0.0	0.0	Normal	1915	1820	1890	1875	0.0
556	0.0	0.5	30% less	2000	1920	2070	1995	6.4
557	2.0	0.5	30% less	2130	2270	2365	2255	20.2
558	2.0	0.5	40% less	2000	2165	2195	2120	13.1
559	2.0	0.5	50% less	1965	2060	2270	2095	11.7
560	2.0	0.5	60% less	1800	1880	2055	1910	1.8

It will be noticed that even when the yeast is reduced by 30, 40 and 50 per cent., the average loaf volume is, respectively, 20.2, 13.1 and 11.7 per cent. larger than that of the control. Even when 60 per cent. less yeast is used, the loaf volume is practically the same as that of the control. This most remarkable saving in yeast is very desirable indeed, as everyone familiar with baking operations will understand.

As a further aid to the yeast in performing its functions in the dough batch, it has been found highly desirable to supply oxygen or substances that liberate oxygen during the fermentation period. The value of oxygen is well recognized in brewing and in the manufacture of yeast, and it is customary to aerate thoroughly the fermenting wort. However, the direct treatment of bread dough with air or oxygen, as was first done by passing the gases into the dough from a cylinder, was found to be difficult to accomplish, owing to the viscous nature of dough. Later, it was accomplished more conveniently and economically by the addition of minute quantities of potassium bromate, which, under the influence of the yeast in the dough batch, breaks down, liberating free oxygen in the active nascent state just at the time when it is most desired, and thus assists the yeast in accomplishing its work. The effect is so pronounced that only one ounce is required in ten thousand loaves. Potassium bromate does not stimulate the gas production of the yeast, as do calcium sulphate and sal-ammoniac, but aids the yeast in conditioning or maturing the dough, so that considerably less yeast is required.

With this interesting information at hand, the next step in the investigation was to make some practical use of it. The amounts of the salts required to supply the nutriment for the yeast are exceedingly small in comparison with a large dough batch, and it is impractical to add them separately. For the sake of convenience and accuracy in their application, the salts were mixed with flour and common salt, so that it required 8 ounces of the mixture for every 100 pounds of flour. The finished product is a dry powder that may be added as conveniently as the salt or sugar and requires no special skill or apparatus.

The adoption of the "Arkady Process," as the above-described procedure is termed, has aided greatly in standardizing the bread made in various localities. Heretofore it was found necessary to make certain alterations in the formulas in different cities, even though all the raw materials were identical, being purchased at a central office. The differences observed were as already explained, undoubtedly due to differences in the water used, and these are practically overcome by the use of the nutrient salts.

Certain other advantages of great importance were observed as well. Early in the development of the new process it was noticed that the bread had a better "bloom" than that made by the old process. This was considered a very significant fact, and naturally it was undertaken to discover the reason for it. Every baker knows that one of the principal features of the "bloom" of bread is the proportion of sugar used in the batch. Furthermore, it is common knowledge that the longer bread is allowed to ferment the less color it takes when baked. One reason for this is undoubtedly the continual consumption of sugar by the yeast as the fermentation proceeds. Naturally, then, one would expect, with a reduction in the yeast of fully 50 per cent., that the consumption of sugar would be greatly reduced. The consumption of sugar in these determinations are given in the following table:

PER CENT LOSS CALCULATED ON FLOUR AS DETERMINED IN THE BAKERY.

Per Cent Loss. New Process.	Old Process.	Saving.	Time, Hours.
0.24	0.39	0.14	1½
0.43	0.69	0.26	2
0.55	0.97	0.42	2½
0.69	1.27	0.58	3
0.82	1.58	0.76	3½
1.10	1.96	0.86	4
1.38	2.36	0.98	4½
1.64	2.68	1.04	5
1.84	3.13	1.29	5½
2.25	3.48	1.23	6
2.49	3.85	1.36	6½
2.81	4.18	1.37	7
3.03	4.35	1.32	7½

The regularity with which the losses increase as the fermentation proceeds indicates unmistakably the destruction of sugar by the yeast. The curves in Fig. I will serve to

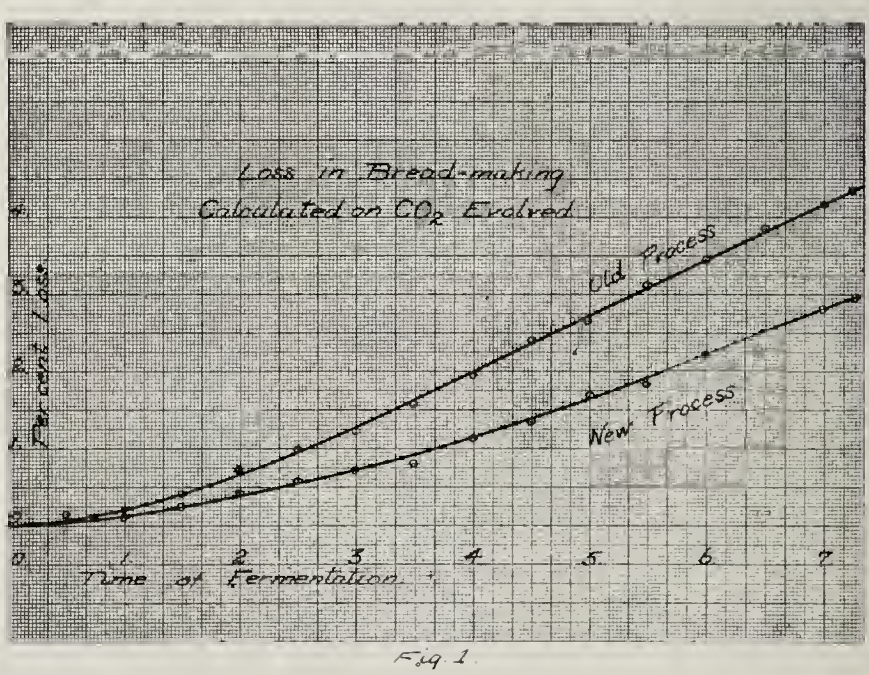

Fig. 1

illustrate this graphically. The area below the curves represents the loss in each process, and the space between the two curves the saving due to the use of the yeast food. At the end of seven hours, the total time employed in this process from the setting of the dough until it was baked, the saving is 1.37 per cent., or 1.37 pounds of sugar for every hundred pounds of flour used. Generally speaking this amounts to about 50 per cent. of the sugar required in bread.

To throw additional light upon the loss of sugar due to the fermentation, sugar determinations were made upon two large bakery batches, one made by the old process and another by the new process. The results may be thus tabulated:

PER CENT SUGAR IN DOUGH CALCULATED UPON THE FLOUR.

Time after setting—	Old Process.	New Process.
At once	5.21	4.72
2 hours	5.67	5.16
4 hours	5.22	5.44
5 hours, 35 minutes	5.13	5.29
7 hours, 10 minutes	4.27	4.88

The new process dough was set with a reduction in sugar; consequently, the initial sugar content is less than that of the other dough. It will be noticed that there is an increase on sugar in both doughs, which is due to the presence of sugar-forming enzymes. At the end of the fermentation period the dough with nutrient salts had more sugar than the other, although less sugar was added. The curves in Fig. 2 will illustrate the sugar changes in the doughs graphically. At the time of setting, the dough made by the old process contained about 1 per cent. more sugar than the other, for less sugar was added in the latter. As the fermentation proceeds, the curves come closer and closer together and cross after about four hours; after seven hours, when the bread was put into the oven, the dough with mineral salts had about 1 per cent. more sugar. This large saving in the destruction of sugar incident to the saving of about 50 per cent. of the yeast is indeed a significant feature of the new process, and is a step in the interest of national conservation.

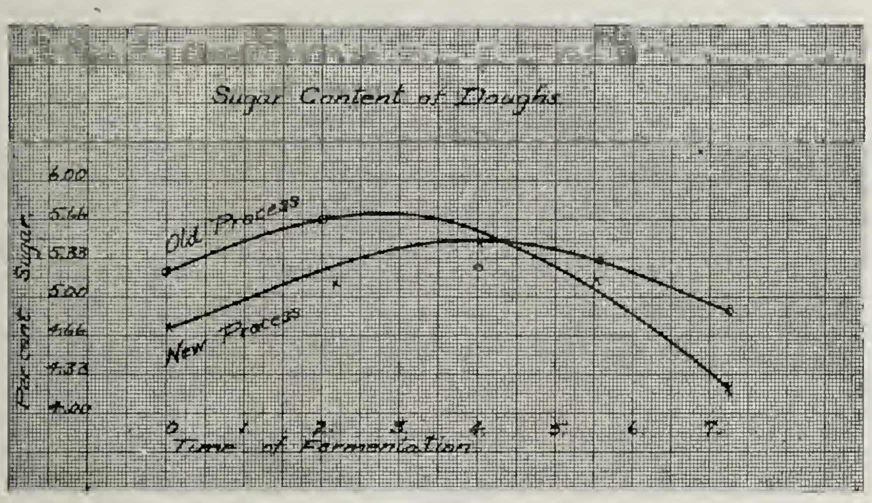

Fig. 2.

Besides the economies in yeast and sugar effected by the use of the yeast food, the dough is considerably improved in stability and is freer from runnyness and stickiness. The improvement in these qualities of the dough are easily apparent to the touch of an experienced baker, but can best be determined and recorded by means of the dough viscosimeter. For this purpose, four doughs were made with the yeast nutrients, in which the proportion of flour to the water was varied and compared with a control. The results are given in the following table:

VISCOSITY OF BREAD DOUGHS WITH AND WITHOUT YEAST NUTRIENTS.

Bread No.	Flour Required to Give Standard Stiffness.	Viscosity.
Control.		
2391	100.0	13
With Nutrients.		
2393	100.0	21
2394	98.4	18
2395	96.7	17
2396	95.1	9

It will be noticed that with yeast nutrients the viscosity is considerably higher than that of the control, when the same amount of flour is used. The table shows further that fully 3 per cent. less flour is required with the yeast food to produce a dough of standard viscosity and stiffness, which is further evidence that the yeast food prevents a substantial part of the waste due to the destruction of fermentable material by the yeast. The advantage of this improvement in increasing the yield of bread and in obtaining the desired moistness and freshness in the finished loaf will be evident to the practical baker.

In addition to the economies in yeast and sugar and the increased yield of bread resulting from proper feeding of the yeast, there is an improvement in the general character of the bread. The color, texture, expansion and bloom are superior and the flavor is more nearly that of the original wheat, since it has less of the yeasty taste.

In connection with the use of ammonium salts in bread, the work of Ehrlich is of interest. He demonstrates that the presence of certain amino acids, particularly leucine and isoleucine, both of which are found in wheat, gives rise to the production of fusel oil, even to the extent of 7 per cent. under favorable conditions. He demonstrated further that by the addition of ammonium salts, the yeast feeds upon these and does not attack the amino acids, and consequently less fusel oil is produced. The use of ammonium salts in distilleries to prevent the formation of fusel oil, which causes so much trouble, was suggested, and it is highly probable that the use of ammonium chloride in bread retards the formation of fusel oil, which may account for the fact that the bread has more of the natural flavor of wheat.

The wholesomeness of the bread is likewise improved. The addition of the calcium salt replenishes the bread in lime content, so that it approximates that of the original wheat. It should be mentioned that Rudolph Emerrich and Oscar Loew (Z. Hygiene, 77, 311-28), two eminent scientists, advocate the use of calcium salts in bread from a purely dietetic standpoint. In the light of the deficiency of calcium in most American dietaries (Experiment Station Record, **20**, 68), the increase in the lime of bread by the use of the new process becomes all the more important. Authorities agree that a man should have 1.5 grams of lime per day and to obtain this amount from bread alone would require more than 10 pounds of bread, while a quart of milk would furnish more than the required amount. As other cereals, potatoes and meats are also low in this important element, many of the poorer people who subsist largely upon these staples suffer from lack of lime.

Compared with many natural waters, white bread is also deficient in lime. The U. S. Geological Survey Water Supply Paper No. **364** gives the analysis of a number of natural waters which contain more lime in a single glass (250 c.c.) than there is in a whole loaf of white bread. Many of the waters contain twenty times as much lime in a single glass as there is in a slice of bread made by the new process. The deficiency of this important element in white bread has long been recognized by food authorities and frequent attempts have been made by bakers to popularize entire wheat breads. However, as entire wheat flour contains so much of the indigestible outer woody coat, or bran, of the wheat, this bread is used only to a limited extent and white bread made from patent flour remains in popular favor. Furthermore, it is the most digestible bread, and to return to darker, coarser flours would be a denial of the progress in the milling and baking industries that represents the labors of centuries and to which we point with just pride. The restoration of the desired mineral matter in bread by direct addition, thus eliminating the objectionable features of the bran particles of the darker flours, seems the most desirable solution of the problem.

The ammonium salt is added to supply the nitrogenous nutriment required by the yeast and as such is used up by the yeast. As it is more readily assimilated by the yeast than the proteins of wheat, it spares these from destruction by the yeast and leaves the bread richer in proteins. The added potassium bromate is broken down and its oxygen content does its work in the dough batch. There remains in the bread a trace of potassium bromide, which is without any physiological effect, as the amount is so small that a man would have to eat a whole loaf of bread every day for 10 years to obtain one full medicinal dose.

Viewed from every angle, the proper use of yeast nutrients in bread making is highly commendable. This use serves to standardize the water, thus facilitating the manufacture of uniformly good bread from day to day throughout the country. From the point of view of the flour, it is desirable, as it restores one of the most important mineral elements in wheat, namely, the lime, the greater part of which is lost in milling operations. It is a step in the interest of national economy, inasmuch as it saves 50 per cent. of the yeast ordinarily required, every pound of which represents approximately four pounds of grain in its manufacture; and, besides, it saves a considerable portion of the constituents of the flour, due to the reduced destruction of these by the smaller quantity of yeast required. The addition of small quantities of lime salts, which is particularly desirable since our dietaries are mostly deficient in this important element, makes the bread more healthful for the consumer. Because of all these facts, it is plainly evident that the proper feeding of the yeast marks a great advance in bread making practice.

It should be said in conclusion that the new process is employed in the manufacture of nearly 2,000,000 loaves daily and its use promises to become general throughout the country.

Pertinent Remarks on Sanitation

By Stephen Trineau

A further step in progressiveness in the sanitation of food products is manifest in Kansas. At the suggestion of Doctor S. J. Crumbine, Secretary of the State Board of Health, the State Hotel Commissioner, in sending out annual notices to proprietors of hotels and restaurants, has requested their cooperation in demanding from all employes who are engaged in the handling of food products, a medical certificate declaring them free from communicable disease. This movement at the present time is tentative and there is no attempt at coercion, for while the Commissioner is given large powers of discretion in promoting regulations for the health and safety of hotel guests, yet it has been felt that a campaign of education should precede such regulation or, possibly, statutory enactment. However, the response of proprietors has been highly gratifying, and denotes that the hotel men have sensed the growing public sentiment on this score and like good business men, are prompt and ready to meet it. There was even competition among the most progressive for Certificate No. 1, and many vied in returning the first results of physical examinations. Employes who furnished certificates of health are approving it with varying degrees of enthusiasm, while those who failed and thereby were given opportunity to offer resignations, are unanimous in declaring it a "rotten" plan and have sought employment with a proprietor who is not so inquisitive as to their health status, and who is non-solicitous concerning the welfare of his guests.

It is undeniable that the inspiration and stimulus in the passage of the first food regulatory laws, was on the part of the majority of legislators, a desire for the promotion of the public health, and that the sanitary aspect of these laws appealed most forcibly to their belief in the necessity of these enactments. And, while, to those who have had the duty of the enforcement of these laws, this point has never been masked, our national commercial instincts have often caused it to be somewhat shrouded, at times to its almost ultimate neglect. That out of this confusion, largely economic in its nature, the sanitary feature is bulking large in the vision of food producers, is certainly congratulatory and those to whom it has never been obscured look forward with encouragement. And they have had reason for feeling otherwise. What a paradox to demand tuberculin tested milk when those who pour it are permitted to reinfect it with a tuberculous spray through careless coughing—what an absurdity becomes the care of the canner to insure by every known means of careful manufacture the freedom of his product against the charge of ptomaines, when the fingers which serve it are reeking with typhoid infection—what platitudes are those regulations which concern themselves with trivial sophistications of foods and ignore the fact that the presence of pathogenic organisms in foods are the result of human contact and carelessness. Isn't it time we should be harking back to basic principles?

In its operation, however, the plan of physical examination has some deterrent factors well worth consideration by those who contemplate enforcing it. The first, as always, to be thought of, is the economic or financial phase. Who shall pay for the examination? Those who have recollections of the unearned "tips" donated to many obeisant waiters and believe that cooks owe their immediate paternity to Captain Kidd, will have no hesitancy or qualms in deciding the matter. But the cooks and the waiters, who have their own difficulties with the H. C. of L. over and above their daily bread and other hotel and restaurant delicacies, have some decided and seemingly valid objections to dividing *your* tips with a white-gowned medical gentleman, who may, as likely as not, refuse to assure their employers of their perfect health, and thereby separate them from the source of supply of more gratuities from dyspeptic guests. The proceeding to them is of doubtful amusement with a serious risk and an unnecessary expense wholly incompatible with their wage earnings. They argue that if the proprietor wishes to insure to his guests a superior quality of waiters and cooks he should be willing to add the price to the expense of conducting business, as he would add the cost of any other article supplied. Their argument looks reasonable, and some proprietors compromise on the fifty-fifty basis.

On the other hand, the proprietor argues that, since the whole question is one of betterment of public service, it should be done at public expense and by public officials. And indeed why not? If food products undergo analysis in laboratories supported at public expense, why should not those who serve these foods be entitled to equal consideration by these laboratories, when the purpose in each instance is identical, viz., the protection of the public health. Additionally, an examination by public officials will be accepted by the public as unbiased and thorough. For the small fee usually charged for these examinations by individual physicians the proceeding can be neither painstaking or scientific; it is admittedly superficial and can only detect the obvious infections, which, with the possible exception of venereal diseases, should be apparent to the qualified and trained food inspector. While it will doubtless result in eliminating many unfit, it does not discover a latent tuberculous infection, it will not reveal a chronic typhoid carrier, it will not disclose a dormant venereal lesion. Beside, if the employe repairs to his family physician for this examination (and the majority will) how far will many physicians weigh the confidences of a patient, a tangible prospect, against the welfare of the public, so highly intangible? Indeed does not the code of the profession, by and large, teach respect for the confidential statements of patients, and is the physician justified by this code in violating such confidence. A very nice point in ethics, and while it may be said for the vast majority of physicians that the rights of the public always have first consideration, yet the chances for exceptions and for errors are great, and should be obviated. By all means, it would seem, then, that if we are to perfect this method of insuring the health and freedom from infection in those who handle food products, we must look forward to perfecting first a machinery for conducting it that will at once guarantee, above all criticism, a thorough, scientific, unprejudiced and impartial inspection, respecting equally the interests of all concerned—the employee, the employer, and the public. If we are to have it, and we must, let us have it done right from the outset.

Candling Eggs

By D. J. Frazier

Food and Drug Inspector for the State of Tennessee

"Candling" an egg consists in ascertaining its character by allowing light to penetrate the contents, and is the method in common use for eliminating the bad eggs and grading the good. The original method was to hold eggs before lighted candles. This accounts for the term "candling," which is still in common use, though the original method is at present rarely used.

The ordinary apparatus in use at present consists of a light (preferably electric) inclosed in a receptacle, with one or two holes about 1½ inches in diameter, to which the eggs are applied. This is operated in a "dark room," or room from which practically all light is excluded. No light should reach the eyes of the operator except that which penetrates through the egg. Very satisfactory results, however can be accomplished without a "dark room" by operating in a shaded corner or other portion of a room where the operator can work with his back toward the light, if the candling apparatus and background are painted black or covered with black cloth or paper. In candling, the large end of the egg should be applied to the hole, with the small end ranging downward at an angle of about thirty degrees from horizontal. The egg should then be given one or more quick turns or twists and observed closely. The motion, as well as the appearance of the contents, determines the character of the egg.

A normal fresh egg is distinguished before the "candle" by its transparency, dim, slow-moving shadow of the yolk, absence of defects, and smallness of the air cell at the large end of the egg, ranging from the size of a pea to a silver dime. This air space increases in size with the age of the egg, and the yolk shadow becomes heavier and shows a greater rapidity and range of motion. Some fresh eggs have abnormal defects when laid, such as "liver spots" or "meat spots," blood clots, bloody albumen, and foreign objects, such as grains of wheat, etc. This is due to abnormal or defective condition of the hen's reproductive organs.

A stale or shrunken egg is distinguished by the large air space and distinctness of the yolk. While classed as edible, it is generally considered of inferior quality, usually being classed as No. 2 or lower.

A "heated" egg is one in which germination has started, but not yet advanced to the blood-ring stage. It is distinguished by a small spot or "light" ring on the yolk. It is considered edible if no other defects are present, but will not long remain so.

Cold-storage eggs are recognized mainly by the uniformity in size and appearance of the air spaces. The shell over the air space is more transparent, with a more distinct line surrounding it, than in the ordinary "held" egg. There is also a distinctive coloring or fluorescence at the border of the air space, more noticeable in eggs with white shells.

Among the rots, or inedible eggs, the "black rot" is the most readily detected before the "candle," the contents appearing black or very dark. The more pronounced black rots can even be detected without candling by the dull, grayish color of the shell.

"Red rots" are not so easily detected, sometimes being passed as good on account of their close resemblance to a good egg with a dark, thick shell. A marked difference in the color of contents and that of the shell over the air space will indicate this class of rots.

In the term "mixed rot" are usually included what are sometimes called "sour rots," "white rots," "watery rots," and "addled" eggs. These are distinguished by the clouded, curdled, or lumpy appearance of the contents, together with the absence of the yolk shadow as seen in an egg when the yolk is intact.

A "blood ring" is a fertile egg incubated to a stage when red blood shows in a ring from the size of a pea to almost the entire circumference of the egg. After the process of incubation is stopped and the embryo dies, the egg may further develop into other classes of rots, usually mixed and black rots. After the death of the embryo and consequent decomposition has commenced, the blood ring itself cannot always be seen, as it drops to the bottom or opposite side of the egg from that observed by the operator. But expert candlers are able to judge this class of eggs by the motion alone when the egg is given a quick turn. The yolk is seen to come up and then drop back again instead of remaining at the top, as is the usual rule.

The term "spot rot" is applied to a "stuck" egg or a "heated" egg, showing a dark spot on the yolk, caused by its decomposition at the point of the dead germ. An egg with mold spots is also usually classed as a "spot."

A "stuck" egg is one in which the yolk has adhered to the shell. It is very readily detected under the candle by the dark spot at the point of adhesion, and the yolk is observed to cling to this point when the egg is given a quick turn. The white of an egg is of an aseptic nature, and under normal conditions resists the encroachment of bacteria; but this is not the case with the yolk, which, on coming in contact with the shell, becomes immediately invaded by putrefactive organisms. As a result, decomposition begins and progresses rapidly at ordinary temperature. Consequently a "stuck" egg is invariably classed as a "rot," and is unfit for food.

Occasionally an egg with a greenish white hue is found. This is commonly known as a "grass egg," being erroneously supposed to be caused by the grass or other green food eaten by the hen. But this condition has been found to be produced by bacterial invasion, and, therefore, renders the egg unsafe for food. This egg is very difficult to detect under the candle, showing a slight greenish tint in most cases hardly noticeable. Fortunately, this class of eggs is not of frequent occurrence.

State Food Inspection

By the Editor.

The report of the Tennessee Food and Drugs Department for the six months from April to October is printed in full in the following paragraphs for several reasons.

This is by no means the most voluminous state report that could be printed in these columns to show the efficacy of state food inspection. It goes without saying that Tennessee, with its population of 2,184,789 and but four large cities, could hardly be expected to furnish record-breaking statistics of any kind. However, this report goes far toward disproving the statement sometimes made that state food laws, while they look well in print, are practically negligible because of their non-enforcement, the chief reason for non-enforcement being attributed to a lack of funds. Commissioner Eskew in his report to the Governor of Tennessee complains of this lack of funds, as might well be expected, but that lack does not seem to have hampered him to any great extent.

In Tennessee the Food and Drugs Department has in its charge the enforcement of eight separate laws, by name the Food and Drugs Law, the Sanitary Food Law, the Hotel Inspection Law, the Weights and Measures Act, the Soft Drinks Law, the Milk Standards Law, the Anti-Narcotics Law, and the Law Regulating the Sale of Intoxicating Liquors by Druggists. The foregoing are all fairly well explained by their titles with the possible exception of the first two. The Food and Drugs Law concerns itself with adulterating and misbranding, whereas the Sanitary Food Law controls the manner in which products are manufactured, stored and distributed from a sanitary point of view.

The appropriation for the year is $26,000 and covers all salaries and general expenses. Commissioner Eskew has in his office six inspectors who are responsible for the entire state. Their activities are shown in the digest below, most eloquent testimony in support of the claim that much in the way of inspection can be accomplished at comparatively little cost if the work is vigorously prosecuted.

REPORT OF THE TENNESSEE FOOD AND DRUGS DEPARTMENT FOR SIX MONTHS—APRIL 1 TO OCTOBER 1, 1916.

During the past six months the field force made 9,439 inspections, which include various food-handling establishments, as follows:

Groceries (retail)	3,609
Restaurants	937
Soft-drink stands	1,853
Meat shops	664
Fruit stands	383
Bakeries	187
Confectioneries	354
Lunch stands	168
Ice-cream factories	105
Produce houses	209
Bottling works	50
Candy factories	16
Ice-cream stands	115
Fish markets	18
Market-house stalls	14
Dairies	8
Drug stores	624
Slaughterhouses	19
Flour mills	3
Hucksters	19
Canning factories	4
Wharf freight house	1
Gristmills	4
Milk depots	4
Syrup manufacturers	2
Bakery wagons	1
Grocery wagons	1
Sausage factory	1
Groceries (wholesale)	23
Creamery	1
Ice House	1
Druggists (wholesale)	9
Packing house	1
Ice wagon	1
Ice factories	7
Market wagon	1
Molasses reboiling plants	2
Corn mills	5
Coffee roaster	1
Patent-medicine manufacturers	4
Milk delivery wagon	1
Boarding houses	5
Freight house	1
Ladling plants	2
Chicken killer	1
Total	9,439

The conditions found in the various establishments are briefly depicted in the following summary:

In good condition	5,529
Not in good condition, sanitary order issued	3,699
Reinspected	974
Previous order complied with	707
Previous order partly complied with	135
Previous order not complied with	44
Gone out of business	52

A total of 11,589 packages of food not labeled to show their net contents were found by inspectors. Dealers in food products are being systematically instructed to label such packages.

Under the Soft-Drink-Stand Law, a total of 567 establishments were visited and 156 samples taken.

Under the Drug-Store Liquor Law, 31 investigations were made.

Under the Anti-Narcotics Law, 190 investigations were made.

During the course of these inspections, inspectors have condemned 257 lots of food, totaling 5,885 pounds, that were unfit for consumption.

Following is a summary of the work done under the Hotel-Inspection Law:

Hotels, number inspected	464
Passed as O. K.	220
Correction notices issued	214
Reinspected	244
Previous order complied with	138
Previous order partly complied with	59
Previous order not complied with	20
Gone out of business	15
Certificates issued	144

REPORT OF THE FOOD AND DRUGS LABORATORY.

Soft-Drink-Stand Law samples	233
Food samples	332
Drug samples	39
Total	604

SUMMARY OF FOOD SAMPLES.

Sample.	Legal.	Illegal.	Total.
Cheese	..	1	1
Extract of lemon	1	..	1
Maple sugar	1	1	2
Ham	..	1	1
Milk	3	48	51
Lard	1	..	1
Sauer kraut	..	1	1
Flour	..	5	5
Sorghum	..	1	1
Eggs	35	114	149
Tomatoes	2	..	2
Food paste	1	..	1
Vinegar	1	5	6
Honey	2	..	2
Beverages	1	..	1
Canned peas	..	1	1
Unmarked goods	..	105	105
Syrup	..	1	1
Total	48	284	332

PROSECUTIONS FOR PAST SIX MONTHS.

FOOD AND DRUGS LAW.

During the past six months there were 21 prosecutions under the Food and Drugs Law. A verdict of guilty was returned in 13 of these cases and fines amounting to $60 and costs were collected; 4 cases were compromised; and in 4 cases the defendants were bound over to grand jury under $25 bond each. During the same period there were 43 prosecutions under the Sanitary Food and Hotel Laws. A verdict of guilty was returned in 19 of these cases and fines amounting to $180 and costs were collected; 22 cases were compromised; in 1 case a hotel was enjoined and closed as a nuisance, and 1 case was dismissed. There were 124 prosecutions under the Soft-Drink-Stand Law during this period. In 24 of these permanent injunctions were granted; in 6, temporary injunctions were granted; in 1 a temporary injunction was dissolved; in 69 injunctions were filed, in 11 temporary injunctions were made permanent, in 3 contempt cases were brought, and in 10 a verdict of guilty for contempt was found. Under the Acts of 1909, Chapter 446, a fine of 25c per bottle for the first offense is imposed for refilling milk bottles, etc., of another firm, person or corporation. Seventeen prosecutions were made under this act. In all of them a verdict of guilty was found and fines amounting to $9.25 and costs were collected.

With the Wholesale Grocers

Next Annual Convention.

The eleventh annual meeting of the National Wholesale Grocers' Association will be held during the week of May 14, 1917, at Washington, D. C. The headquarters will be at the New Willard Hotel.

Metric Conference.

A metric conference will be held at Columbia University, New York City, Wednesday, December 27, 1916, in connection with the seventieth meeting of the American Association for the Advancement of Science. The conference will open with a public meeting held under Section 1, Social and Economic Science, under the direction of its retiring chairman, Dr. George F. Kunz, at which time prominent speakers will point out the desirability of the United States becoming a metric country.

At two o'clock of the same day representatives of the interested organizations will meet further for the purpose of discussing (a) the formation of a conference (or association) composed of those organizations having metric committees (b) the best methods of furthering the metric cause in this country.

The following representatives and organizations are among those sending out the invitations for the call under the chairmanship of Dr. H. V. Arny, professor of chemistry in the School of Pharmacy, Columbia University:

Fred R. Drake, representing the National Wholesale Grocers' Association of the United States.

G. F. Kunz, representing the American Institute of Mining Engineers.

C. A. Mayo, representing the American Pharmaceutical Association.

A. E. Kennelly, representing the American Institute of Electrical Engineers.

H. V. Arny, representing the American Chemical Society.

Dr. A. W. Miller, representing the National Wholesale Druggists' Association.

Albert Klingman, representing the National Association of Retails Druggists.

Geo. L. Flanders, representing the National Association of Food and Dairy Officials.

G. W. Thompson, representing the American Institute of Chemical Engineers.

Help For the Retail Grocer.

A series of leaflets, under the general heading "Better Business," is being prepared by the educational committee of the National Wholesale Grocers' Association, in co-operation with the National Association of Retail Grocers. The first three of the series are ready for distribution and it is to be hoped that there will be a prompt and heavy demand for them on the part of all who send out mail matter to retail grocers. The leaflets are of a size and weight appropriate for use as a "filler" with ordinary mail and despite their necessary brevity are full of constructively helpful suggestions.

The first leaflet, *"How the Retail Grocer May Better Know His Business,"* is an argument in favor of cost-keeping. While it apparently is not the intention to recommend definite figures, it is stated that "Some retail grocers make a net profit on their total sales of over 10 per cent. * * * Some retail grocers do business on a selling expense of 4½ per cent of sales. Efficient stores find that 2½ per cent of value of net sales is a standard of delivery cost."

"Watching Your Business" is the title of the second in the series. Starting with an allegory of "John" and "George," who represent types of retail grocers, it ends with a series of questions, such as the following: Have you an effective system of bookkeeping? Do you take advantage of all discounts for cash? Are your invoices checked against goods received? Are your employes handling cash adequately bonded? Are you carrying sufficient insurance to cover your stock and do you take the proper precautions to see that your insurance policies are renewed on time? Is your stock neatly arranged, and is your window display attracting the trade it should? Have your scales been tested recently? Could you not arrange your delivery routes to better advantage?

Dr. Frank Crane's sermonette on *"Our Grocer,"* reprinted by courtesy of *Associated Newspapers,* constitutes the principal part of leaflet number three. It is very much to the point and is reprinted herewith:

"Our grocer knows his business. He knows the best part of his business, which is cultivating the friendship of his customers.

"His store is as neat as a pin. There is no trash on the floor. His shelves are attractively arranged. He keeps the place looking like an exhibit at a fair all the time.

"His clerks do not wear dirty aprons.

"They are all polite. He had a grouch-face once, but fired him the second day.

"When you come into the store somebody always greets you. If all the clerks are busy one of them will excuse himself for a moment to his customer, speak to you, and ask you to pardon delay, to look around and see if you fancy anything, and you will be waited on as soon as possible. You are not ignored and made to feel that you have intruded somewhere where you are not wanted.

"When a clerk writes down your order it is in duplicate, and you are asked to look over the list and verify it.

"If the eggs are not above reproach, if the butter is not sweet, if anything he sends you is unsatisfactory, he is glad to have you return it. He'd rather lose a sale than a customer.

"While he is accommodating in his dealings, he is strict about payments.

"On his monthly statements is a printed note saying: 'This is a grocery store. It is not a bank. We would like to do anything to please you except lend you money. To extend your credit over a month is the same as lending you money. Don't ask us. Bills are payable monthly, and if not paid by the 10th credit will be discontinued.'

"He does not care for customers who are slow pay.

"He has a special telephone where a special clerk looks after regular customers. For instance, he will call up Mrs. Jones and say:

"'How did you like that cheese we sent you Saturday? Yes? We are anxious to get reports from our customers on that cheese. Thank you. Pleased that you liked it. We have some extra fine melons this morning. Shall we save you half a dozen?' And so on.

"This is plain jollying. But it pays.

"He keeps right after us. Every week he mails us a little leaflet list of specialties and bargains.

"He impresses his delivery clerks with the importance of keeping on the good side of servants. The hired girls all like to see the grocery boy come around.

"Everything at our grocer's is labeled with the price. And there is but one price. No haggling. Take it or leave it.

"When any one of his clerks promises to deliver your order by 10 a. m. the goods are at your house at 10 a. m. If not, you are telephoned and an apology is offered.

"Our grocer realizes the importance of being dependable.

"He keeps his word.

"He tells the truth.

"He is punctual, clean and agreeable.

"His name is ——————————.

"Read this to your grocer and ask him if you can write his name in that blank space."

A Food Lawyer's Comment On the Recent Ice-Cream Decision

In my opinion this decision does not establish a new precedent of any kind. It simply confirms the principle that has for many years been well recognized and established by decisions of both State and National courts. That is, that it is entirely within the power of a State Legislature to establish standards for food products, especially when the standards are merely regulatory in nature, and not prohibitory. The fact that the Supreme Court of the United States took occasion in this opinion to say that the standards related only to a product sold "as ice cream" is quite significant. Had the Legislatures of Iowa and Pennsylvania endeavored by legislation to exclude from the market any ice cream, or frozen milk or cream product, that did not conform to the standards, regardless of how such product might be labeled, the decision of the Supreme Court might, and probably would have been to the effect that such legislation is unconstitutional and void. Because while a legislature may regulate the sale of food, in my judgment it is not within the power of a legislature to absolutely prohibit the sale of a wholesome article of food when sold for exactly what it is and no question of artificial color or other element which might work deception is involved.

This decision may, however, cause renewed activity during the coming sessions of the State Legislatures and Congress on the part of the State and National food officials in an effort to have food standards adopted for the various States and the National government. Food manufacturers are not entirely harmonious in their opinions on the proposition as to whether or not it is advisable to have food standards, either State or National. I do not wish to express an opinion on the issue as to whether or not it is advisable to have such standards. At the same time, I have very decided views as to the manner in which such standards should be adopted if at all. I believe that if standards are to be adopted in any State, or in Congress, those standards should be adopted by the Legislatures or by Congress in the regular way in which all laws are adopted, and that they should not be adopted through the medium of delegated power to food officials. If the food officials of any State or of the government feel that it is necessary, in order to enforce the food laws, to have standards, then they should draft up their ideas on the subject in the form of a bill, incorporating in that bill the various standards which they think they should have. Then that bill should take the regular legislative course and manufacturers interested in the subject should have the right to go before their duly elected legislative representatives in any State or in Congress and have a hearing on that bill, or on any standard incorporated in it. It might be that after an impartial legislative body has heard the arguments on both sides they might not agree with the food manufacturers; and on the other hand they might not agree with the food officials. At any rate such a proceeding ought not to be *ex parte*, and the popular way of adopting standards in the past has been through *ex parte* proceedings. Of course I do not mean to say that the food manufacturers have not as a rule been given a chance to be heard on such standards before the food officials seeking to adopt them; but it is hardly fair to the food manufacturers to ask them to present their side of the argument to a court composed of food officials who, in the very nature of things, are prejudiced against food manufacturers and in all—or nearly all—instances have probably made up their minds as to what they are going to do before they have even heard the food manufacturers' side.

Therefore, if we must have food standards let them be adopted in the way that the Supreme Court has pointed out as a legal way.

THOMAS E. LANNEN.

Book Reviews

FEEDING THE FAMILY.—By Mary Swartz Rose, Ph. D., Assistant Professor, Department of Nutrition, Teachers' College, Columbia University. The Macmillan Company, New York, N. Y. 449 pp. $2.10 net.

Do you believe in calories? If you don't you will find but scanty appreciation of your skepticism in Miss Rose's latest book, *Feeding the Family*. If you do, however, if you realize that "nutrition is science rather than a bundle of old wives' rules; that foods, though so numerous and so varied in form, can be reduced to rather simple terms; that the amount required by a man for a day's work can be determined with amazing accuracy; and that even the factors which govern so obscure an impulse as the power to grow can be analyzed and a young animal made to grow or be stunted at will by the control of its food," that "traditions have grown up about foods, prejudices against this and that, rooted in ancient tribal or religious taboos, or the results of misinterpreted experiences," and that "the occult powers of the moon are no greater than the reputed magic of all sorts of foods," you will find *Feeding the Family* interesting from cover to cover. The author is scientific in the best sense of the word in that she knows her subject thoroughly and makes her knowledge of constructive assistance to her readers. After introductory chapters on the nature and digestion of foods, there is a series of chapters giving, seriatim, dietaries for the various members of the family from the oldest to the youngest, not forgetting a special chapter devoted to the needs of the sick and convalescent. An important part of the book is the appendix of some 100 pages which discusses practically everything of interest in regard to foods in terms of 100 calorie portions. The book is strikingly illustrated by means of photographs with black backgrounds.

CHANGES IN THE FOOD SUPPLY AND THEIR RELATION TO NUTRITION.—By Lafayette B. Mendel, Ph. D., Sc. D., Professor of Physiological Chemistry in the Sheffield Scientific School, Yale University. Yale University Press. 62 pp. $0.50 net.

This is the printed copy of an address delivered by Dr. Mendel before the Pan-American Congress in December, 1915. The author in comparatively small compass covers a great deal of ground. Starting with an historical review of all the various prophecies as to probable sources of food supply for coming generations, the author, in most interesting fashion, describes briefly the present conditions under which food is now being brought to the consumer. The commercial manufacture of food is handled in an intelligent and eminently fair fashion. The nutritive value of foods, while not treated exhaustively, is authentic, as any one conversant with Dr. Mendel's experimentations may easily realize. The author adds to the book a distinct value in that he gives his best judgment as to the probable sources of supply for succeeding generations.

THE FUNDAMENTAL BASIS OF NUTRITION.—By Graham Lusk, Ph. D., Professor of Physiology, Cornell University Medical College, and Scientific Director of the Russell Sage Institute of Pathology. Yale University Press. 62 pp. $0.50 net.

This is a book of but few pages, each one of which is crowded with precise information. It contains in concrete form the results of many years of work on the part of one of the leading American students of dietetics. Every person intelligently interested in the question of food should know this book by heart. Dr. Lusk interestingly reviews the entire groundwork of our present knowledge of foods in his first few pages. The interrelation of the various constituents of what is called "protein" is expressed in terms at once scientific and easy to understand. The matter of dietaries is discussed both historically and in the light of present knowledge, the last few pages being devoted to data descriptive of the articles of food sold by Child's restaurant in New

York City. If every American family had Dr. Lusk's book in its library we should soon see evidences of a more intelligent appreciation of the relative value of foods than is at present the case.

FOOD ANALYSIS.—By A. G. Woodman, Associate Professor of Food Analysis, Massachusetts Institute of Technology. McGraw-Hill Book Company, Inc. 510 pp. $3 net.

As the author states in his opening sentence, this book might be regarded as a handbook for the convenient study of Leach's Food Analysis. To the average reader it is much easier reading than is Leach, just as many commentaries on Darwin are better reading than are the works of the great naturalist. While designed primarily as a textbook, "Food Analysis" is by no means unsuited to the general reader, and especially to the food manufacturer. Owing to the nature of the book, it is not complete in detail, although it is unusually complete in its generalizations. This is a point which is liable to mislead the general reader at first glance. As a case in point, under the extremely important heading, "Carbohydrate Foods," there are 42 pages devoted to general methods of analysis, followed by 15 pages devoted to maple syrup—a comparatively insignificant foodstuff. Were it not for the fact that maple syrup is used by Professor Woodman as a *type* of carbohydrate and not primarily as an individual part of the inclusive family of carbohydrates, his appreciation of relative values might be questioned. The book is decidedly well worth while if considered in the light of a treatise on method rather than a reference work.

Recent Patents

The following patents of interest to readers of this journal recently were issued from the United States Patent Office. Copies thereof may be obtained from R. E. Burnham, patent and trade-mark attorney, 882 Bond Building, Washington, D. C., at the rate of 20c each. State number of patent and name of inventor when ordering:

1,205,320. Food product. Ashley V. Black, St. Louis, Mo., assignor to Grain Products Co., same place.

1,205,710. Dough-press. John J. Cavagnaro, Harrison, N. J.

1,205,951. Machine for assembling wafers. Alexander Brady, Newton Lower Falls, Mass.

1,205,986. Apparatus for weighing and testing milk. Harrison S. Gipe, Palmyra, and Amos M. Kuhns, Union Deposit, Pennsylvania.

1,206,118. Baking-oven. John Laraburu, San Francisco, Cal.

1,206,069. Candy-forming machine. John Werner, Rochester, N. Y.

1,206,258. Method of blanching peanuts. Felix Salomon, Chicago, Ill., assignor to United Fig & Date Co., same place.

1,206,289. Machine for drawing out macaroni or like alimentary pastes. Pilade Barducci, Naples, Italy.

1,206,494. Ham-shaper. Hans Adelmann, New York, N. Y., assignor to Ham Boiler Corporation, same place.

1,206,804. Food product. Ashley V. Black, St. Louis, Mo., assignor to Grain Products Co., same place.

1,206,852. Health food and process of making same. Elizabeth A. Johnston, Providence, R. I.

1,206,877. Method of packing and frying fish. Francis P. McColl, St. Andrews, New Brunswick, Canada, assignor to American Key Can Co., Chicago, Ill.

1,206,954. Process of making food products. Thomas B. Walker, Austin, Tex.

1,207,012. Process of making food from spent yeast. Paul E. Floare, Kansas City, Mo.

1,207,014. Grape-juice and process of preparing same. Aladar Fonyo, Chicago, Ill.

1,207,143. Dough-kneading machine. Ignazio De Francisci, New York, N. Y.

1,207,148. Candy-cooling pan. James C. Drew, New Orleans, La.

1,207,177. Process of making soluble starch. Julius Kantorowicz, Breslau, Germany.

1,207,181. Charging and emptying device for baking-ovens and the like. Friedrich Kuhtz, Stuttgart-Canstatt, Germany.

1,207,840. Process of treating sugar-beets and the product derived therefrom. George H. Benjamin, New York, N. Y.

1,207,852. Confectionery-mold. Remy C. Burger, Toronto, Ontario, Canada.

1,207,865. Butter-forming machine. Napoleon Choquette, St. Ludger, Quebec, Canada.

1,208,041. Process-kettle. Clarence E. Steele, Chicago, Ill., assignor to Sprague Canning Machinery Co., same place.

1,208,175. Process for preparing food. Louis Lipman, Seattle, Wash.

1,208,328. Chocolate-stringing machine. Theodor Kihlgren, Springfield, Mass., assignor to National Equipment Co., same place.

1,208,335. Sterilizer for removing cake-icing. Edward E. Lawrence, Cambridge, Mass., assignor to Loose-Wiles Biscuit Co., Kansas City, Mo.

1,208,402. Assembling apparatus. Frederick J. Thomas, Taunton, Mass., assignor to New England Confectionery Co., Boston, Mass.

1,208,802. Sugar tablet or cube boxing machine. Jacob H. Lienau and William Steenken, New York, N. Y.; said Lienau assignor of his one-half to The National Sugar Refining Co. of New Jersey.

1,208,803. Automatic stacking or boxing machine. Jacob H. Lienau and William Steenken, New York, N. Y.; said Lienau assignor of his one-half to The National Sugar Refining Co. of New Jersey.

1,208,850. Food compound. Ona E. Smith, San Jose, Cal.

1,208,909. Process of packing ripe olives. Howard P. & Grinnell Burt, Palermo, Cal.

1,209,275. Method of treating joint-meat and the like and product thereof. Hugh J. Finn, Kansas City, Mo., assignor to Sulzberger & Sons Co., Chicago, Ill.

1,209,276. Apparatus for treating hams, shoulders, or joint-meat in general. Hugh J. Finn, Kansas City, Mo., assignor to Sulzberger & Sons Co., Chicago, Ill.

1,209,399. Process whereby a valuable and nutritious extract is produced from fish or other aquatic animals. William V. Coons and Bert Hewitt, Victoria, British Columbia, Canada.

1,209,619. Automatic continuous cooker for food products in hermetically-sealed containers. Edward S. Rea, San Francisco, and William S. Rea, Jr., Oakland, Cal.

Sugar Beets in Michigan.

The Executive Committee of the Michigan State Grange, being satisfied that the sugar beet growers of the state are not receiving their share of the proceeds from this crop, has called a mass meeting of the beet growers in Saginaw on January 2, 1917, to consider the situation and to adopt measures that will enable the growers to obtain the price they feel that they ought to receive in view of the considerably higher cost of production. Every farmer and farm organization interested in the growing of sugar beets is invited to take part in this meeting, and in the meantime all are advised not to make contracts for future delivery.

Beef, High Priced but Good.

The Grand Champion carload of Angus Aberdeen cattle at the International Live Stock Exposition in Chicago was purchased by Wilson & Co. at 28c per pound, the highest price ever paid for a carload of cattle at the Union Stock Yards, and 11 cents a pound over the highest previous price. These cattle also won the special prize of the Aberdeen Angus Breeding Association for the grand champion carload lot as well as the championship of the show itself.

The carload weighed 17,200 pounds, an average of 1,146 pounds. At 28c a pound this makes a total of $4,816, or $321.08 a head. The cattle were fed by Ed. P. Hall of Mechanicsville, Illinois.

Staff Correspondence

Washington, D. C.

Congress has taken steps to make an *economic study of the food situation* in the United States.

The house now has before it a resolution introduced by Representative Borland of Missouri instructing the Federal Trade Commission to make a general investigation of all conditions affecting the food supply and particularly those affecting the live stock markets and the packing houses.

The resolution was reported to the House by the judiciary committee. Representative C. C. Carlin of Virginia made the report. He was chairman of the sub-committee which during the last session conducted prolonged hearings on another Borland resolution—one for a straightaway investigation of the live stock and packing industry.

The Carlin report says the proposed investigation concerns one of the greatest problems before the nation today. Chairman Hurley, of the Federal Trade Commission, estimates that the investigation will cost $142,000 and require about fifteen to eighteen months.

Discussing the hearings of the committee on the shortage and present high prices of foodstuffs, the Carlin report says:

"These hearings disclosed a condition strongly pointing to a control of the products referred to by those engaged in marketing the same in this country and in foreign countries. It disclosed also that marketing conditions were not at all satisfactory to a large number of farmers and stock raisers. It appears, however, that the production of food products is not keeping pace with consumption throughout the country as represented by the growing industrial population of the cities.

"Food shortage with a resulting distress to wage earners, and consumers, is not only a possibility but a real menace.

"Your committee believes there is an economical problem involved which can only be solved in the interest of the American people by a thorough investigation of the subject. The cost of living has been steadily increasing—until a condition is presented which demands the immediate and intelligent consideration of the Federal authorities and which may require legislation in order to correct the present system."

The legislation recommended takes the form of House Resolution No. 389, being Mr. Borland's bill and reading, in part, as follows:

"* * * Therefore be it

"Resolved, That the Federal Trade Commission be, and it is hereby directed * * * to investigate and report to the House of Representatives at the earliest moment practicable the basic facts relating to the production, transportation, marketing, manufacture and distribution of food supplies.

"Second. The cause or causes of the present shortage and high prices of the same in view of the tremendous productive capacity of this country.

"Third. Whether the apparent shortage of supply and high prices are due to any conspiracy, combination, contract, or practices in restraint of trade on the part of any person, groups, associations, or corporations engaged in any of such processes, and especially whether, and what, violations of the antitrust laws exist in such processes.

"Fourth. The extent, manner and methods of any manipulation of the markets or control of the visible supply of food products by any individuals, groups, associations, or corporations, and especially those engaged in the slaughtering and marketing of meat products, and also in the storage and distribution of poultry, eggs, butter and dairy products, fresh fruits and vegetables, wheat and other cereals, and whether there is a joint control by any persons, groups, associations, or corporations of the storing, preparation, marketing and distribution of said products.

"Fifth. What, if any, legislation is needed to insure the maximum of profitable production of food products in this country together with the free and open channel of distribution of the same to the wage earners and consumers at prices which shall insure a large and steady supply and be within the purchasing power of fair industrial wages.

"Sec. 2. That the President of the United States be, and he is hereby requested to direct the several departments and bureaus of the United States Government, and in particular the Department of Agriculture and the Office of Markets and Rural Organization therein, to furnish to the said Federal Trade Commission, upon its request, papers, information and data in their possession, respectively, relating to any of the matters herein required to be investigated, and to detail from time to time such officials and employes to the commission as it may request for the purposes of conducting said investigation and preparing said report."

While there has been a lot of talk throughout the country concerning an *embargo,* there is absolutely no likelihood that there will be any embargo legislation at this session.

Only a few congressmen and senators have introduced embargo measures. They come largely from the cities and opposed to them and their schemes is the entire membership of Congress from the rural districts of the country.

Senator Martine introduced an embargo resolution on the first day of the session, the purpose of which was to have the president declare a straightaway embargo on all food products. This was referred to the committee on foreign relations and has not been heard of since.

In the House, Representative Fitzgerald of New York introduced four bills on the food question on the first day of the session. Outside of a lot of newspaper discussion, no attention has been paid to them.

The first proposes an abolition of the present zone system in the parcel post division of the postal service and the substitution therefor of a rate of 3 cents a pound for the first pound or fraction thereof and 1 cent for each additional pound, irrespective of distance.

The second Fitzgerald measure proposes regulation of the interstate shipment of cold storage foods. He would make it illegal to ship food which has been in storage more than ten months, with the exception of butter products, to which he would allow 12 months' storage. Also, he would make it essential for persons placing food of any description in storage to stamp on it or its package the day, month and year it was put in.

The third Fitzgerald measure proposes an embargo on all farm products, fish, game, and manufactured foodstuffs for the period of one year.

The fourth provides that at any time within two years the president shall be empowered whenever in his opinion excessive prices are being charged to prohibit the exports of all farm products, fish, game and manufactured foodstuffs.

The first of these measures was referred to the post office committee of the House. The other three were sent to the committee on interstate and foreign commerce.

Mr. Fitzgerald has threatened to demand public hearings on them, but members of both committees say they will be given scant attention.

Congressmen Emerson of Ohio, Sabath of Chicago, and Farr of Pennsylvania make up a trio who would stop the exportation of food products.

Mr. Emerson, like Mr. Fitzgerald, has introduced several measures. In one he would prevent cold storage warehouses from holding perishable food products more than three months. Like Mr. Fitzgerald, Mr. Emerson also would have the zone system of the parcels post abolished, or else reduce the cost of transporting food packages temporarily. He also proposes that the secretary of agriculture should investigate and report whether an embargo is necessary on wheat and whether or not it is possible to move cheaply food products from sections where they are plentiful to sections where they are scarce.

Staff Correspondence

Mr. Farr introduced a resolution confined wholly to the wheat situation. He would have the secretary of agriculture inform the house:

First. The actual supply of wheat, of wheat flour, and of wheat products available on the first day of July, nineteen hundred and sixteen;

Second. The quantity of wheat, of wheat flour, and of wheat products exported since July first, nineteen hundred and sixteen;

Third. The quantity of wheat, of wheat flour, and of wheat products for which contracts for export have been made for shipment during the four months succeeding December fifteenth, nineteen hundred and sixteen; and

Fourth. Estimates in possession of the department of the quantity of wheat, of wheat flour, and of wheat products required for consumption in the United States, including seed wheat, and for all other purposes.

Mr. Sabath's measures propose an investigation by the attorney general into the alleged control of foodstuffs; an investigation of storage conditions; and an investigation of sugar conditions in the country.

With respect to investigations by the department of justice, it is well to recall that shortly after the outbreak of the European war prices began to soar. President Wilson ordered an investigation. In a number of instances indictments were returned charging conspiracy to boost prices without reason. A few fines were levied and paid. Then the whole thing was dropped until a few weeks ago when United States Attorney Anderson of Boston was called to Washington and placed in charge of a general investigation into the food situation by the department of justice agents.

Thus far Mr. Anderson has found no violations of law. It is to be expected that some conspiracies will be uncovered, however, and a few indictments returned. It is generally believed, though, that the whole matter will be dropped as soon as the war is over or as soon as the public cools down a bit.

Congress generally attributes the high prices to the actual market conditions. Congressman Mann of Chicago summed the situation up tersely recently as follows:

"It would be just as reasonable to enact legislation to increase prices when they are low as it would be to decrease them when they are high. Congress should not devote its attention to fixing prices contrary to the law of supply and demand."

Mr. Mann formerly was chairman of the committee on Interstate and Foreign Commerce. During the recent public crusade against cold storage houses, he said: "I remember when I was a boy and we had no storage houses eggs were higher in winter than they are now. The public occasionally loses its perspective altogether. While there may be evils about the storage situation which should be corrected, it is my personal opinion that storage houses are the greatest stabilizers of prices we have in the country, as well as the greatest guarantees of a consistent and steady food supply."

Representative Young of North Dakota recently introduced a bill for the establishment of *a municipal bakery* in the District of Columbia for the purpose of obtaining correct information with respect to the cost of baking and distributing bread.

Mr. Young has been one of the leaders in the fight on the bill of Representative Rainey of Illinois proposing the repeal of the tax on mixed flour. As a representative of North Dakota wheat growers, he insists that the mixing of corn and wheat flours would be detrimental to their interests. Representative Rainey on the other hand contends that the enactment of his law would increase the consumption of wheat flour and permit a tremendous consumption of corn flour.

Several bills have been introduced for the establishment of *municipal abattoirs,* for the purpose of determining the cost of killing cattle and also to bring to the people a direct meat market without the intercession of packers' profits. None of these is likely to be passed at this session.

The Chicago packers are greatly interested in a measure recently introduced by Representative Aswell of Louisiana, proposing a material reduction in the existing federal tax on *oleomargarine.*

The present tax is ten cents per pound on artificially colored oleo and one-fourth of a cent per pound on all uncolored. Mr. Aswell would levy a tax of one cent per pound on all of it, colored or uncolored.

The Aswell bill was referred to the committee on agriculture which has had before it for a number of months a measure introduced by Representative Haugen of Iowa proposing drastic changes in the oleo law and increased taxation. The Haugen measure has the backing of the dairy interests, which have been trying for several sessions of congress to get it enacted into law.

California

One of the important cases before the California Bureau of Foods and Drugs, and one which is practically terminated, concerns fifty-nine thousand pounds of decomposed, mouldy, frozen egg meats. These *eggs* came from China about April, 1915. They were held in cold storage in San Francisco, in the shell, for six or eight months, after which a large proportion of them had spoiled. At that time the "black rots" were sorted out and the remainder were broken into five-gallon tin cans and frozen in cold storage. Investigation showed that these eggs were decomposed, and contained excessive bacteria. Some of the eggs were mouldy. The case has been in the courts for several months. The lower court found the defendant guilty, ordered the destruction of the eggs, and imposed a fine of $25 as a matter of form. Notice of appeal was given. Recent advices, however, indicate that the appeal will be dropped and the defendant will endeavor to save the eggs for chicken feed, etc. The department will not oppose any ligitimate use of the eggs so long as they are not used for human consumption.

Inasmuch as the California State Board of Health holds the retailer responsible for selling *swelled canned goods* even though he has a guaranty from his jobber, the department has recently directed against the retailer a number of cases based upon decomposed canned fish.

A campaign is to be started immediately against the use in pastry of *saponin* preparations.

It would seem that in California, at least, *walnuts* used in ice cream should be beyond criticism. At present the department is prosecuting all parties concerned in an instance of the use by an ice cream manufacturer of rancid, mouldy, decomposed and insect-infested walnuts which were fit only for hog feed. They were bought by the barrel at the price of cull nuts, and even though the ice cream man did not see the nuts, he had every reason to assume from the price paid for them that they were not fit for human consumption.

The bureau is making an effort to put an end to the use by commercial bakers, of *misleading labels,* one of the largest bake shops in San Francisco having been brought to book for selling bread conspicuously labeled "'Butter bread.' Pure creamery butter used," which, upon analysis, was found to contain but a mere trace of butter.

In addition to the foregoing there are at present pending cases summarized as follows:

Four egg and egg products prosecutions in two of which stale, or worse, eggs were offered for sale as fresh eggs, one case of an egg custard powder which contained no egg and was colored with coal tar dye, and one case of an egg powder adulterated with cereals; two cases of decomposed ketchup and one of decomposed "tomato conserve"; two suits against manufacturers of baked products, one being an instance of "gluten bread" made from common flour, and one of the macaroons adulterated with flour; two cases of imitation apple cider; and one case each of decomposed sardines, condensed skimmed milk in bad condition, a preservative (sodium sulphite) in sausage, adulterated lemon extract and imitation raspberry syrup.

Idaho.

Settlement has been made with the government of its action concerning 400 cases of *tomatoes* condemned at Caldwell in this state because they were partly decomposed. Under the terms of the settlement the Goddard Pickle & Preserve Company of Ogden, Utah, consignors of the tomatoes, take back those fit for use in the opinion of the pure food inspector, and a bond is to be given to protect against the shipment of those unfit in violation of the state and federal laws.

There may be a reconstruction and *consolidation of food and health departments* by the incoming legislature, the political complexion of which has changed from Republican to Democratic. It is proposed to place both departments under one head. At present they are under the jurisdiction of the board of health. The same jurisdiction would exist under the proposed consolidation but the food commissioner would assume the additional duties of secretary of the board of health. Both the food and the board of health departments are now maintained separately. Dr. Ralph Falk, secretary of the board, resigned this month, as did also Dr. E. E. Laughbaugh, state bacteriologist.

There will be introduced at the opening session of the legislature a bill drafted by Commissioner J. K. White relating to *cold storage warehouses*. This is the most important measure that the department will present. The measure provides that licenses authorizing the operation of such warehouses shall be issued only after due examination as to sanitary qualifications, such licenses to be for a year only. Those operating warehouses are required to keep an accurate record of all receipts and withdrawals, such records to be open to the department. A quarterly report is called for and reports may be demanded more frequently if it seems desirable. One section of the bill stipulates that food neither suitable nor intended for human consumption can be kept in cold storage only under regulations laid down by the board of health. That body is made responsible for the enforcement of all terms of the act and is instructed to inspect both the sanitary qualifications of the warehouses and the food as it is taken therein. One section calls for the date of receipt and of withdrawal of food products. One section limits, except under exceptional circumstances, the length of storage to 12 months. Section 9 stipulates that it shall be unlawful to sell food which has been held in cold storage except when accompanied by the display of a sign marked "Cold storage goods for sale."

Indiana.

During November State Food Commissioner Barnard made a careful study of the *cold storage stocks* of food in Indiana. He found that the reports that enormous stocks of butter, eggs and other foodstuffs were being held in storage by speculators were wholly untrue insofar as the Indiana warehouses were concerned. Practically all of the fifty-five licensed warehouses were visited during the month, and in but three of them were any eggs stored. The entire egg holdings amounted to less than ten thousand cases, hardly sufficient for a single breakfast for the three million consumers of the State. Butter stocks are also very low. Most of the warehouses are carrying moderate stocks of apples, in almost every instance owned by the grower and stored for spring sale. The present high price is forcing these apples out of storage more rapidly than in other years.

The food inspectors report that farmers are rushing their *hogs and poultry* to market and that the amount of stock which will be wintered is less than for years past. This is due to the fact that pork and poultry are selling at good prices and that it does not pay to feed them high priced grain.

The attempt of consumers to reduce the price of food by the use of the *boycott* has had its effect on the price of butter and eggs, and the farmer who after years of hard work and little profit sees his opportunity to get a good price for his produce go glimmering because housewives are refusing to buy it, is inclined to resent the agitation over the high prices of food and to call attention to the fact that other expenses of living in the city are increasing even more rapidly than the price of food, and as yet no boycott has been suggested against the moving picture show, or as a means by which to check the advancing price of gasoline.

The Indiana Manufacturers of Dairy Products and the Indiana Ice Cream Manufacturers' Association, have just closed their first annual convention and dairy supply show. This organization brings together the men and industries that are bringing Indiana to the forefront as a dairy state. One of the features of the show was the exhibit of the Pure Food Department which graphically pointed out the *relative nutritive value of butter and milk* as compared with other foods. Inspector Bruner in preparing this exhibit covered several tables with high priced foods such as poultry, apples, potatoes, celery, eggs and oysters. He showed that one pound of butter is equivalent in energy value to 51.4 pounds of celery, 48 pounds of lettuce, 31.6 pounds of onions, 11 pounds and 9 ounces potatoes, 23 pounds and 13 ounces of turnips, 16 pounds and 2 ounces of apples, 12 pounds and 4 ounces of chicken, 15 pounds and 10 ounces of oysters and 5 pounds and 10 ounces (4 dozen) eggs. In another table he showed that one quart of milk is equivalent to four pounds of oranges, 7 pounds of fresh tomatoes, 0.38 of a pound of bacon, 0.56 of a pound of bologna sausage or 11 ounces of lean beef. In addressing the convention Commissioner Barnard in speaking of the aim of the dairy department said in part: "It is our purpose to furnish you an adequate state inspection, desirable partly for the purpose of maintaining a high standard of sanitary conditions, partly because such an inspection places upon your products the seal of approval which is now demanded by the consumer and which when so awarded materially helps in establishing your market. It is our desire to work out methods of production which will improve quality without increasing costs beyond reason."

The governmental authorities have been successful in keeping the *moisture content of creamery butter* below 16%, but butter made on the farm and retailed to customers or bartered at the grocery store is not subject to inspection and samples sent in for analysis have frequently shown a moisture content above 20% and in some instances 30%. Occasionally samples reach the laboratory which are the so-called "Merged" butters in which by the use of small beaters a pint of milk is incorporated with a pound of butter, producing a butter-like product which, however, is so full of water that its food value is greatly reduced and its keeping quality injured. The inspectors have been instructed to send in samples of country butter and ordered to file prosecutions whenever the moisture content exceeds 16%.

The *monthly bulletin* for November will show 908 inspections of food producing and distributing establishments. Of this number but six places were listed as excellent. Four hundred and eighty-five grocery stores were in good condition, 388 were fair only, and 29 were listed as poor. Following these inspections 40 notices of condemnation were issued against 16 restaurants, 3 meat markets, 9 grocery stores and one bakeshop. The food inspectors are exceedingly critical in their work, and when they find unsanitary conditions, do not hesitate to condemn the place until repairs have been made and sanitary conditions improved.

The Weights and Measures Inspector who has been working in the smaller cities of Indiana which have no local inspector, reports the condition of the *scales, weights and measures* as most unsatisfactory. Of the 395 scales examined during the month 128, or 32.2%, were found inaccurate. Of the 313 measures tested 130, or 41.6%, were inaccurate. Dealers were using the obsolete tall form measures, bottomless measures and double bottomed measures. As a result of the work of Inspector Willett the city officials of New Castle, Noblesville and Vincennes have signified their intention of appointing a local inspector of weights and measures.

Commission merchants have been advised by Commissioner Barnard that hereafter packages of raw foodstuffs such as bags of potatoes, onions and turnips; hampers of beans, sweet potatoes; crates of celery, etc., shall be marked with the *net weight or volume* of the contents. In the case of onions, turnips, parsnips and sweet potatoes, the bushel shall contain the number of pounds fixed by law.

Kansas.

The Corn Products Refining Company applied for an injunction against V. C. Eddy and the Kansas State Board of Health to prevent the interference of the latter in the sale of *"Mary Jane"* without compliance with regulations as to labeling, but was denied a rehearing December 13, by the Kansas supreme court.

Kansas cold storage men are watching with interest a controversy between the Kansas City authorities and the *egg storage* and commission houses of that city. The former propose to enact an ordinance to compel the stamping of all eggs with the date when placed in storage, while the latter threaten in event of its enactment to make the consumer pay the bill of stamping and to move all their stores to the Kansas side of the state line.

Commission men are reporting a considerable amount of deterioration in *citrus fruits* now being shipped into the state, evidently due to freezing of the fruit on the tree during the early fall low temperature in California. Out of 72 samples examined by the Kansas State Board of Health laboratories at the Agricultural College at Manhattan approximately only one-fourth were up to standard quality, one-fourth were badly deteriorated, as manifested by pithiness and by lack of weight and moisture, while the balance ranged between these extremes. The deteriorated article presents as good general ocular appearance as the standard.

An Iola (Kansas) grocer has announced an innovation in store service in the medium of a *"basket store"* on the cafeteria plan. Customers will be given baskets and a check slip. Passing through the aisles of counters on which products are arranged with prices attached they make selections and pay the cashier as they go out. It is believed that the saving of clerk hire will enable him to make material reduction in prices and still permit suitable profits. The result of the experiment is awaited with interest by other merchants.

J. C. Mohler, Secretary of the Kansas Board of Agriculture, announces that since 1906 the number of dairy cattle in the state has doubled, having reached a total of 1,077,000. On this basis the *dairy business* is becoming one of increasing importance and it is intimated that these interests will demand more stringent protective legislation during the 1917 session of the legislature.

Dealers in food products all over the state are reporting increased consumption of *oleomargarine* as a substitute for butter, the price of the latter seeming almost prohibitive to many wage earners. This compulsion has been of popular educational worth in food values, as is evidenced by the fact that a proposal to impose a local city or state tax upon oleomargarine brought forth not a few protests on the grounds that it is a poor man's food and as such this consumer should not be charged with the addition to the price of it which such a tax entailed.

The report of the Efficiency and Economy Committee appointed by act of the Kansas 1915 legislature recommends the *consolidation of all departments* which pertain to the Department of Agriculture, in charge of a commissioner. They would include the State Board of Agriculture, the Departments of Horticulture, Live Stock, Grain Inspection, Entomology, Dairy, Forestry, Stallion Registration, Feeding Stuffs Inspection, Highway Engineer, Irrigation, Veterinary, Fish and Game, Geology, and all other departments existing or contemplated which would rightly come under this head. The aim is to imitate our national government in this particular. No specific mention is made of the Division of Food and Drugs, at present in the department of the State Board of Health. This report awaits the consideration of the legislature of 1917 which meets January 9.

A week or two ago a Kansas City girl was found to be suffering symptoms of an acute *poisoning,* claimed by her to be due to eating "canned mushrooms." Investigation indicated, however, that symptoms were due to a self-administered dose of bichlorid of mercury, taken with suicidal intent.

Kansas farmers are not looking with favor upon the proposed *food embargo,* and many granges and other farmers' organizations have filed protests with their congressmen from this state. Nor has the "boycott" of various food products, seemingly so popular in the eastern states and cities, struck any popular chord. While prices for staples have been with slight exception as high as in other parts of the country, there seems to have been no concerted attempt to effect any actual boycott. Perhaps this is due in part to the fact that Kansas people are prosperous and can afford to pay better prices. It is also true that the majority of our cities owe their prosperity to farmer patronage, and higher prices for farm products mean the circulation of more money in other lines of trade. Perhaps, too, the Kansas farmer who is holding his grain for higher prices and believes it a legitimate commercial enterprise, sympathizes fully with those who are holding other food products for the same reason. While the boycott has been discussed by many women's clubs, it was, when referred by several of these clubs to Commissioner S. J. Crumbine, dismissed as impractical, and characterized as "un-American."

With each wave of high prices, there is always a revival of the "direct-from-the-producer-to-the-consumer" plan by means of a *"city market."* City markets in Kansas towns have never achieved any great measure of success. The Division of Food and Drugs of the Kansas State Board of Health has never given such markets full sanction and approval, because of the fact that sanitary supervision and food inspection in connection therewith is rendered extremely difficult to those who are charged with this duty.

Pennsylvania.

Two bills of prime importance to the food trade of Pennsylvania are being prepared for early submission to the legislature and others are now being discussed generally. It is probable that the governor in his annual message will call for some stiffening of the acts governing state supervision of the food supply. The policy of the state dairy and food commissioner will be to maintain the essential features of the cold storage regulation act of 1913, but to present bills which will make smoother its administration. No suggestion of any change in the time limits of storage is considered at all likely. The bills which are being discussed call for some state system of sanitary inspection of grocery and provision stores and for a state standard of bread loaves.

It is understood that the grocery trade favors sanitary inspection of grocery stores. Attempts of state inspectors to eliminate unwholesome packages of breakfast foods and similar provisions have often demonstrated that surroundings have much to do with the unwholesomeness of such products. In some of the industrial communities of Pennsylvania there are stores which are little better than "holes in the wall" where little or no attempt is made at cleanliness. Such places harm the trade as a whole, which is at all times as zealous to maintain good sanitary conditions as are the inspectors. Often local supervision extends no farther than the collection of the fee, and the publicity which

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Staff Correspondence

follows discovery of unsanitary conditions injures sanitary stores.

James Sweeney, the state chief of standards who is the supervisor of the weights and measures, is gunning for *bakers*. Mr. Sweeney's ire was aroused because of a recent meeting held in Harrisburg by the State Association of Bakers who decided to make general the 6-cent loaf. It is now the rule in a majority of the counties, but Mr. Sweeney contends that as a result of purchases and weighing of loaves he found that 11 ounces constituted the weight in numerous cases and that an 11-ounce loaf for 6 cents is not fair when it is considered that a 16-ounce loaf used to be sold for 5 cents. The increase in the price of flour, supplies, materials, labor and other items, he holds, does not justify both a reduction of the weight and an increase in the price. A bill for a state standard loaf will be submitted. The bakers are urging the purchase of the 10-cent loaf, which is gaining considerable popularity.

Another bill discussed will probably strengthen the act governing the manufacture and sale of *non-alcoholic drinks*.

Whether a *general sanitary bill* to govern the manufacture, handling and sale of all food products will come up is not known. The subject has been considerably discussed especially since the agitation for dairy inspection, which sprung up following typhoid outbreaks.

The *dairy inspection* bill is to be made an administration measure and will probably take the form of a license for the sale of milk. Many of the big dairying concerns have regulations for their own protection more stringent than any the state could devise. There are others, however, which have been reported as in need of state regulation and the average farm will bear occasional inspection. The dairy inspection will be under the direction of the state veterinarian, who is the executive officer of the state live stock sanitary board, as it is a foregone conclusion that Pennsylvania will keep all food inspection and supervision under the department of agriculture, leaving to the department of health the regulation of general health matters. The dairy inspection bill will call for inspection by state veterinarians, regular reports on conditions, tests of milk when required and a state license.

Active steps are being taken by the departments of health and fisheries to end *pollution of streams*. The department of health has given special attention to the elimination of sewage, and the wastes from manufacturing establishments are now getting attention where they endanger water supplies. A general plan which will extend over a long period of years is being worked out by a committee of manufacturers, tanners and others which will be taken up by health authorities.

Commissioner James Foust has been congratulated upon a record-breaking year in his department, not only for the number and variety of samples taken, but for his success in prosecuting cases where violations were discovered by the chemists. The receipts from oleomargarine licenses were approximately $305,000, an amount several times the biennial appropriation to run the commissioner's whole office. The number of licenses will probably run to 3,800. In the way of fines the office turned in a substantial sum.

Commissioner Foust is preparing a statement of the year's work. It is almost ten years since he took charge of the division and there has been a quadrupling of activity and big jump in revenue. The commissioner in discussing the work said that the cold storage men had co-operated with him in enforcing the law in the recent season when such establishments were much in the limelight and that the provision trade had stood by him and aided in many ways to check frauds which are as dangerous to the trade as to the consumer.

Vigorous enforcement of the weights and measures law took place during November and December because of complaints of food prices, but the number of violations discovered was not large. The activities of the city and county sealers had already caused merchants to advise manufacturers and jobbers that the state was insisting upon standards. Dishonest retailers abandoned some of the practices after being fined and systematically "inspected."

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There is little probability that investigations of state commissions and fulminations of local committees will reduce the *price of milk*. Statistical information collected at the capitol has been published showing the generally increasing prices for everything used on the dairy farm.

State agents have brought eight prosecutions as the result of a raid on *hamburg steak* sellers in Pittsburgh, it having been found that some retailers were selling steak containing stale meat, freshened and containing preservatives alleged to be composed of sulphites. The law provides a fine of from $100 to $200 for the first offense. These arrests are the first of the kind in western Pennsylvania in years. In Philadelphia agents have arrested a number of retailers for selling cold storage eggs as fresh, the high prices proving too great a temptation for some of the small merchants in industrial districts.

The affirmation of the state *ice cream standard law* by the United States Supreme Court has been followed by some active work in the courts to clear dockets of cases affected by the ruling. It is not believed that it will be necessary to bring additional suits as the ice cream trade has accepted the decision with good grace. Also, ice cream manufacturers have been having troubles at home because of inspection of the many factories which have been started since the outbreaks of typhoid last summer. Unfortunately, many well conducted establishments have been put to much expense because of the conditions obtaining in very few plants.

As a result of samples taken by the agents of the dairy and food commissioner, *flavoring extracts* are declared to be generally improving and adulterations or misbrandings few and far between. The inspection covered practically every brand sold in the state and the results have been printed in pamphlet form. Of 200 samples only a dozen were below par. One was a sample 14 years old which contained wood alcohol.

Signs are not wanting that the bill which appears biennially to reduce the cost of *oleomargarine* licenses will be presented before long. Labor organizations are backing the bill this year.

Immense quantities of *fish* have been "planted" in the streams of the state the last year by the fisheries department, the number of food fish being greater than ever before. In the Lake Erie district over 65,000,000 white fish eggs have been propagated and similar work done to increase the herring. Plans for a state code governing fishing, with a license for fishermen, have been made and the bill will be presented.

Provision for a *bureau of poultry* in the state department of agriculture is being made. The plans include the eradication of diseases and also the improvement of stock and of methods of marketing both fowls and eggs.

Data compiled on the state yield of *honey* shows that the average production per colony of bees was 54 pounds, against 34 a year ago. The total crop was worth $1,250,000 in round numbers, the price averaging 18c a pound.

Figures compiled in the last week on state crops for 1916 show: Wheat, 25,070,500 bushels, slight gain; corn, 54,061,400, slight loss; rye, 4,495,400, slight loss; oats, 32,571,000, loss of 10,000,000; buckwheat, 4,480,000, loss of 600,000; potatoes, 18,564,000, loss of 1,500,000; eggs, 76,315,000 dozen (estimated); apples, 16,932,000 bushels; peaches, 2,166,000 baskets; pears, 494,000 bushels. An interesting sidelight is a production of 5,241,000 tons of hay, a gain of 1,500,000 tons. The value of this crop is given as $75,998,000 and will probably cause more attention to be given to hay next season.

South Dakota.

The newspapers of South Dakota are complaining of the state regulations in regard to the use of oleomargarine. But for these state laws it would be much used in an effort to reduce the present "high cost of living." The state law prevents the use or sale of oleomargarine or other butter substitutes with any coloring matter contained therein; and prohibits the use of these products by hotels or public eating houses, either in cooking or for table use, unless such house posts in a conspicuous place a large card with the words

Cottolene

"The Natural Shortening"

Your pies will be delicious when you use Cottolene for shortening. It makes the crust crisp and flaky and enhances the goodness of the filling.

Use Cottolene for *all* shortening—and also for frying.

Ask your grocer today for a regular supply of Cottolene. Large or small pails, as you like.

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We want you to feel that Wilson's Majestic Label means that the food products bearing it have been handled with the repect due that which you are asked to buy and eat.

And—with the constant thought—that they are to meet the exacting taste of particular people.

Be particular therefore — specify Wilson's Majestic Ham, Bacon and Lard when you order today.

All Wilson & Co. food products are prepared under U. S. Government supervision.

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Where Quality and Economy Meet

Gives better satisfaction than 75 per cent of butter used. Cost one=third less. Try it and be convinced. Order a package from your dealer.

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If your dealer does not handle "COLUMBUS" write us direct.

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First Quality Margarine Churners for Thirty-Three Years

Staff Correspondence

"Substitute for Butter Used Here." In fact the legal restrictions against the use of "Oleo" or butterine (*margarine*) are so strong in the state that its use is limited.

The Great Western Sugar Company of Colorado is pushing work on their new *beet sugar* factory at Belle Fourche in the western part of South Dakota, and a large acreage of beets has been guaranteed for that section for next year. One of the results of this development is that a number of farmers from the beet growing sections of Colorado are visiting Belle Fourche seeking land that they can either buy or rent for the purpose of raising sugar beets.

In tests made through the dairy department of the state agricultural college, the Holstein cow Hester Aaltje Korndyke, No. 133222, on the Westkota ranch of M. J. Smiley, near Belle Fourche, South Dakota, has beaten all records of butter production from any one cow on a seven days' test. The first test showed a record of 1.6 pounds ahead of any former seven-day test of any known cow. Believing that this record could be bettered, the dairy department put the cow in charge of special attendants for a second test of seven days, with a production of 46.772 pounds for that period, or 2.352 pounds in excess of any former record. This cow is a registered Holstein, born in February, 1910, at Pennellville, Pennsylvania, and shipped to Nebraska as a calf, where she was purchased by the present owner, Mr. Smiley. While she is entitled to a long registered title, her designation on the farm is that of "Old Pet."

One of the features of the South Dakota food department under the management of Commissioner Guy G. Frary is a published list of adulterated or misbranded foods, and products entering into the preparation of foods, beverages, candies, drugs and stock feeds. This list is published in each county and states the products offered together with the names of the dealers or persons who are offering them to the public. As the lists are required to be printed in the official newspaper of each county, the purchaser can easily inform himself as to the character of the products offered by dealers, and know the class of product he is purchasing, and in what manner it is being adulterated, or misbranded.

Articles of incorporation were filed this month, under the laws of South Dakota, for the Price Cereal Products Company, with nominal headquarters at Sioux Falls, S. D., but operating from San Francisco, Cal. The company is capitalized at $200,000. The incorporators, Frank R. Hammett, L. S. Sweet, San Francisco; Daniel B. Getty, Huron, S. D.

Virginia.

Virginia is vigorously pursuing a rigorous policy of control of the *oyster industry* of the state, which is meeting not only the local requirements of the districts to which this article of food is shipped, but also the tests of the United States Public Health Service. Extensive surveys of the oyster beds in Virginia waters have been made, and through a system of policing the beds to prevent the removal of oysters from polluted sections, effective laws recently enacted and regulations of the State Food Commissioner, none but oysters of the greatest purity reach the market.

In the latter part of 1914, the State Food Department, together with the United States Public Health Service, conducted a thorough investigation of all the oyster-producing sections of the waters of Virginia. The beds were examined for evidences of pollution, and those so affected, or even suspected, were charted and marked, and tongers were prohibited from removing the oysters from such polluted areas. It was found, however, that these polluted sections constituted only about one-tenth of one per cent of the whole oyster grounds of the state.

To assure the continuous purity of the Virginia oyster, Commissioner B. L. Purcell, of the Food Department, is conducting resurveys from time to time, his deputies maintaining a constant scrutiny of the oyster beds. The waters are at all times policed by vessels of the oyster police fleet to see that tongers do not operate in the polluted sections. In addition, a corps of special police is maintained, who are required to be on the lookout for violators of the oyster laws.

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They spend their time going from boat to boat, seeing that the oystermen have the required licenses, and examining the oysters to see that the cull laws have been observed. These cull laws prescribe that oysters be culled on the rocks, and the small oysters and shells be thrown back to serve as a nucleus for another crop. Stricter enforcement than ever of these laws is now being made, but the difficulty in doing so is becoming constantly less because of the oystermen's realization of the benefits to themselves.

At the recent session of the Virginia legislature, laws were enacted which rigidly control the oyster industry. They empowered the Food and Fish Commissioners to conduct frequent examinations of the oyster beds, and to prosecute all persons guilty of removing the bivalve from polluted territory, and those offering such oysters for sale. Further authority was given the officials to investigate every vessel, shucking and packing house or store, whenever they considered it proper for the purpose of apprehending violators of the oyster laws.

As preventive measures new regulations were authorized to be made by the Food Commissioner, and are being strictly enforced. Notable among these are the certificates issued by the Food Department to oyster growers, packers and shuckers who can show that they are entitled to them, which certify to the freedom from pollution of the areas which have been examined and found unobjectionable, and certify to the cleanliness of, and the sanitary methods employed in the shucking establishments. Oysters, when shipped, bear on their containers copies of these certificates.

Every precaution surrounds the preparation for sale of the Virginia oyster. The shucking plants are required to observe a high standard as to cleanliness and purity of product. After the oysters are removed from the water, they are cleaned by being blown, an effective method of freeing them of dirt, and one which requires placing them in water for from but three to five minutes. The old method of throwing a quantity of oysters in large containers filled with water and allowing them to remain for several hours while being cleaned, is obsolete. When the shucked oysters are prepared for shipment they are packed in sterilized metal containers, surrounded by ice—no ice or water coming in contact with the oysters.

In order that there may be uniform enforcement of the laws relating to oysters in all the waters surrounding Virginia, fish commissioners of Maryland and Virginia, together with the governors of the respective states, recently held a conference, which resulted in the adoption of concurrent rules for the Potomac River, which divides the two states. These will result in the discontinuance of a majority of the violations of the oyster laws on that river, violations which have in the past seriously affected the industry.

The J. J. McPherson Packing Company will shortly open up a $300,000 plant in Norfolk, Va., for the handling of *beef* and products and their by-products. J. J. McPherson, who has had twelve years' experience in the packing business with Morris and Company and three years with Swift and Company, is president and general manager of the new concern. It is believed that the local demands of the meat trade will be sufficient to care for practically all of the output of the factory, although it is likely sale of the products will be made throughout Virginia and North Carolina. Between forty and fifty men will be employed in the industry.

An *apple* packing and grading law for Virginia was the topic of considerable discussion at the annual meeting of the Virginia State Horticultural Society, which met in Roanoke, Va., for three days, beginning December 5th. As yet Virginia has no statute governing apples and their preparation for market, but after a study of all similar laws already adopted by other States, a special committee reported a proposed bill to be presented to the next session of the Virginia Legislature, which convenes in 1918.

The proposed law compels a full and fair disclosure of the contents of all closed packages containing apples grown and packed within the State of Virginia. It is compulsory and applies to the marks and brands which all packages must

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A scientific preparation being the result of extended research by the celebrated chemist Prof. E. N. Horsford, for many years Prof. of Chemistry in Harvard University.

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Its Purity is Unsurpassed.

Staff Correspondence

bear. Only two exceptions would be permitted under the act if passed, and these would apply to apples packed and branded in accordance with the United States law, known as the Sulzer Bill, and apples actually transported to storage within the State. The law, however, would apply to such apples when they are removed from storage for the purpose of being marketed. A choice is given between packing under the proposed State law or under the United States law, but one or the other must be used.

The law would require that the apples be branded with name of the owner, and the grade. Under the latter, four different markings could be used by the owner. They are "Virginia Standard Fancy Grade"; "Virginia Standard A Grade"; "Virginia Standard B Grade"; and "Unclassified." In addition to this there would be markings for size, and special indications for apples blemished or unsound.

Wisconsin.

In his annual report Commissioner George J. Weigle will ask for the following new legislation:

A law authorizing the seizure of food products offered for sale, when such products are unfit for food.

A law reducing the amount of cereals and water in sausage.

A law to regulate the sale of bad eggs.

A law giving the dairy and food commission complete supervision over bakeries.

A law giving the dairy and food department the power to inspect slaughter houses.

Considering these recommendations seriatim the report states that some legislation providing for making effective the condemnation of *unwholesome food products* seems necessary. The departmental inspectors have reason to believe that in not every case has condemned food, particularly meat, been destroyed, but that rather after considerable trimming, soaking and washing, portions of the condemned meat have found their way to the market in the form of sausage. Confiscation and denaturizing by the use of kerosene or similar agents is recommended.

In regard to *sausage,* the report points out that the Wisconsin law should be made to conform with the Federal law which permits but 2% of cereal and 3% of water. At present the Wisconsin law permits the sale of sausage where the cereal does not exceed 4%, and if there is not present more than 10% of added water.

A special law for *eggs* is considered necessary as supplementary legislation to the present general law covering food adulteration, which law gives considerable authority to regulate the sale of bad eggs but says nothing concerning the sale of eggs known as "stuck yolk" or "heavy blood rings," and various other forms of eggs in various degrees of spoilage.

In connection with *bakeries* the report points out that at present a part of the work of bakery inspection is in the hands of the State Industrial Commission and a part in the hands of the Dairy and Food Commission. The recommendation is that it be turned over entirely to the latter body.

With regard to *slaughter houses* it is stated that the power of inspection now rests with the State Board of Health, although the inspection of meat is with the Dairy and Food Commission. The recommendation is that both slaughter houses and meat be placed under the control of the latter body.

The report shows that during the past year 5,790 *sanitary inspections* were made of grocery stores, meat markets and other places where foods are manufactured, stored and sold. Special attention has been given to soda water, soft drinks and "pop" manufacturing establishments, and especially to the washing of containers.

Analyses of the following food products were made by the department:

Eighty-two samples of *beverages* were analyzed. Thirty-seven were found to be lawful. Many were preserved with benzoate of soda and some contained saccharin. The use of saccharin has been nearly stamped out. Investigation has shown that occasionally some dealers buy flavoring extracts

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which were preserved with sodium benzoate and in this way the illegal product is produced.

Twenty-one samples of *canned vegetables* were analyzed. Six were artificially colored by the use of a copper salt. Five were misbranded in that their net weight was not stated or was improperly stated.

Two hundred and twenty-seven samples of *dairy products* (butter, cream, milk, evaporated milk and ice cream) were analyzed. Ten samples of butter were analyzed and all were found to be below the standard in butter fat. One sample contained 71.92%; another 74%, and another 76%. This low percentage of butter fat was due to excessive introduction of water. The offenders were prosecuted. Twenty-two samples of cream and forty-one samples of milk were analyzed.

Seventeen samples of *dried fruits* were collected by inspectors. Eleven were bought for "bleached raisins" and three were bought for "raisins." All were found to have been bleached with sulphur dioxide. All contained sulphuric acid and their sale was therefore in violation of the state food laws.

Forty-three samples of *food preservatives* were analyzed. The majority of the samples collected were Mrs. Price's Canning Compound. Information has been very generally imparted to merchants that the sale of this product is in violation of our state food laws.

Other food preservatives were found to be solutions of benzoate of soda, lime sulphite and "freeze-em pickle." The "freeze-em pickle" was found to be free from sulphites, boric acid and benzoic acid, being composed largely of common salt and salt petre.

Among the *departmental recommendations* are that they be given an inspector who has had practical experience in the canning of vegetables and whose duties shall be limited to the pea canneries in Wisconsin.

In commenting upon the matter of dairy products, the report declares "* * * a general campaign on city milks should be made," and "* * * this campaign should consist of bacteriological work in connection with the chemical work now done."

It is recommended that efforts be made to develop the maple sugar industry in Wisconsin, the sugar produced therein being of a high quality.

Court Sustains New York Health Law.

The New York State Public Health law making unlawful the possession of habit-forming drugs by anyone outside the licensed and registered classes, where possession is not authorized by duly prescribed certificate, and subjecting the possessor to prosecution for misdemeanor, has been sustained on an original test as to its constitutionality by the Court of Special Sessions of the city of New York, Judge Garvin holding that the attempt of the legislature to limit the use of the drugs to those who receive them from an authorized dispenser for medicinal purposes is a proper exercise of the police power.

"GOOD-BYE FLY"

According to Department of Agriculture Bulletin No. 118: Apply 0.62 pounds Borax to every 10 cubic feet of manure. Apply Borax particularly around edges; sprinkle with 2 or 3 gallons of water. This treatment should be repeated with each addition of fresh manure. Flies lay their eggs in fresh manure. Borax prevents their hatching.

Don't use more Borax than recommended above.

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This fresh, clean, sweet, pure milk is evaporated to the consistency of cream, sealed airtight and sterilized. Not only is it pure and healthful, but is absolutely *safe*.

Try it in your cooking and baking. You will quickly realize that at last you have found *the* milk for your home—the only milk you need.

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The answer to the milk question

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A MAYONNAISE OF
SURPASSING DELICIOUSNESS
AT ALL GROCERS

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Good Dietetic Advice.

In the last issue of the Bulletin published by the Chicago School of Sanitary Instruction of the Department of Health are the following sensible words of advice: "Upon your habits of dining depends much of your daily efficiency and your length of life. Just now we are talking and thinking a lot about the high price of foodstuffs.

"Whether the war is the chief cause of it, whether speculators are cornering the market and arbitrarily boosting prices through a wrong use of cold storage plants; or whether other factors of supply and demand are partly responsible, the fact is that the average person needs certain elements of nourishment supplied in common articles of diet. He needs these in varying amounts according to the character of his work and play.

"What is called a balanced ration may be had in a great variety of meats and vegetables, and the balance should be maintained by varying the amount of proteids, starches and fats to meet the demands of hot or cold weather and climate, and the increased and diminished wear of the mind and body through work and play.

"During the next few months of cold weather everybody needs more fat, butter, cream and vegetable oils. All these 'hydro-carbons,' properly digested, make body heat. For this reason, the Eskimo would rather have a pound of tallow than a peck of potatoes.

"Pork, bacon, oleomargarine and butter fat are good Winter food. Olive oil is good medicine because it is nourishing. The body well supplied with these fats will need less demand of the coal bin for artificial heat.

Use of Chocolate and Cocoa Increasing.

A growing fondness for chocolate and cocoa is indicated in the greatly increased imports of crude cocoa into the United States during the last fiscal year. According to statistics compiled by the bureau of foreign and domestic commerce of the Department of Commerce, a total of 243,232,000 pounds were purchased abroad during the fiscal year 1916, which is 50,000,000 pounds more than was bought in 1915 and double the imports of 1910. This is not to be accounted for by decreased imports of manufactured cocoa and chocolate, because we are buying such products in about the usual quantities. Nor is it because we are shipping abroad larger quantities of prepared cocoa and chocolate. It is due solely to a growing taste for chocolate and cocoa, especially the former.

The Soya Bean Industry in the South.

The Louisiana Cottonseed Crushers' Association, at their recent convention at New Orleans, went on record in favor of the development of the soya bean industry in that section of the country, and for scientific co-operation with state agricultural authorities to bring about this end.

The soya bean oil consumption in this country has come to the front very rapidly during the last year as a direct result of the increased demand for cotton seed oil and the high prices obtained. In fact, with the enlarged entry of cottonseed oil into the foodstuffs market as an edible fat, and the perfection of the product for consumption as salad oils and cooking oils, etc., by a constantly growing clientele, it has been withdrawn more and more from use as a saponifying oil, and the product from the soya bean has been substituted in large measure. In fact, today the largest consumers of soya bean oil are soap factories, hitherto relying upon the product of the cottonseed as a base for soap manufacture.

The change was an economic one, brought about by the high price of cottonseed oil as compared with the soya product, for when cottonseed oil was selling at 11½ cents, soya oil was about three cents less. The wartime demand for glycerine and the use of cottonseed oil as a glycerine base product was naturally enough an important factor in the increased prices obtained for cottonseed.

Pasteurization **Butter** **Margarine**

THE AMERICAN FOOD JOURNAL

VOLUME TWELVE
NUMBER TWO

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Painting by
A. EDELFELT.

Louis Pasteur in His Laboratory

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The Encyclopedia Press, Inc.

**Price's
Tropikid
Says—**

**DR. PRICE'S
DELICIOUS
FLAVORING EXTRACT
VANILLA**

IS MADE FROM THE FINEST

Mexican Vanilla Beans

A Guaranteed Pure Food Product
for 62 Years

Also

Lemon, Orange, Raspberry, Strawberry

PURE FRUIT FLAVORS

Price Flavoring Extract Co., Chicago, Ill.

Eat Plenty of Bread—It's Good For You

The consumption of Bread in this country is constantly increasing.

The Wholesomeness, Healthfulness and Economy of Bread make it the "Perfect Food."

Fleischmann's Yeast Makes the Best Bread.

THE FLEISCHMANN COMPANY
FLEISCHMANN'S YEAST

THE AMERICAN FOOD JOURNAL

There is no higher art than that which tends toward the improvement of human food.—*Henry Ward Beecher.*

ROBERT GORDON GOULD, *Editor*

Vol. XII FEBRUARY, 1917 No. 2

Louis Pasteur.

The portrait of Louis Pasteur which forms the cover design for this issue is reproduced through the courtesy of The Encyclopedia Press, Incorporated. It forms the illustration for the biographical article on that scientist as it appears in the Catholic Encyclopedia.

The Food Manufacturer and the Law.

The second installment of "The Food Manufacturer and the Law," which appears in this issue, discusses the situation in this country from the inception of the movement looking toward some sort of control of foods down to the year 1901. In the March issue the subject will be continued from that time on.

Col. Miner No Longer a Director.

Last month in editorially introducing the author of the article on the manufacture of flour we unintentionally strayed from the straight and narrow path. Secretary Husband of the Millers' National Federation tells us that Col. Miner is not an ex-president of that association, nor a present director. Col. Miner was, until recently, a director of the Millers' National Federation. He served for several years as president of the Pennsylvania Millers State Association, not the national organization.

Food Standards.

Rather than attempt to editorialize at length on the highly important subject of legal standards for foods, we shall ask our readers to form their own conclusions in this connection after a careful reading of the illuminating symposium expressive of opinions from practically all branches of the industry. Among the 30 letters printed in this issue will be found some 14 from state food commissioners, 6 from lawyers, and several from chemical engineers, trade associations and individual members of the trade. Practically every shade of opinion is expressed, and it is evident that the matter will be exhaustively gone into before any definite moves are made.

Edible Fats.

There is much in this issue on the general subject of edible fats. In view of the present well justified agitation for some sort of equitable readjustment of the legal control of the manufacture and sale of margarine, commonly known as oleomargarine, oleo, or butterine, an effort has been made to put before the readers of this journal practically all of the important points involved. Table fats are a most important part of our dietary and a very expensive part. The nutritional aspects are well covered in the article on "Fats and Their Economical Use in the Home," which is a partial reprint of a recent governmental publication. The manufacture of butter and margarine is described in an article by the editor, and the article on the important subject of pasteurization is from the pen of Dr. Adolph Gehrmann, one of the leading bacteriologists of this country. Pasteurization is of interest as the so-called butter substitutes are pasteurized whereas raw butter is, generally speaking, unpasteurized, a state of affairs which should be remedied as soon as possible. The laws governing the manufacture and sale of margarine in foreign countries are abstracted and printed on the same page with "The Aswell Bill," which is now before Congress. Taken in its entirety this collection of articles upon the subject of butter and margarine gives a very fair summarization of the subject of edible fats.

Poison Fly Paper Doomed.

Although the midwinter season might seem an inappropriate time for considering the ubiquitous fly and the various methods for his extermination the fact remains that legislation—which is a product of midwinter sessions—on that subject is even now up for action. On the 25th of the month, the Hon. William C. Thon introduced in the Illinois House of Representatives a bill designed to prohibit the use of so-called "poison papers." There are two kinds of fly paper in the present market—the sticky kind and the kind which is impregnated with arsenic. During the past three years 106 little children died from drinking the deadly poison released by that type of fly paper. In all probability the number was much greater, but so difficult is it for the average doctor to distinguish arsenical poisoning from cholera infantum, that many fatal cases are undoubtedly not correctly reported. This is probably the most nonsensical way of killing babies that was ever devised by the mind of man. There is absolutely no excuse for such foolishness and if Mr. Thon's bill isn't enacted by the Illinois legislature it will be due to but one thing, and that is the apathy due to ignorance. Mr. Earnest A. Sweet, in United States Health Bulletin No. 29, in discussing fly papers says that if there were none but poison papers to be had he would advocate abolishing their use, *in toto*. There *are* other types of fly paper on the market and every food inspector and all others who come in contact with those who use fly paper should insist upon the use of non-poisonous paper. Meanwhile, those of our readers who live in Illinois should write their representative at Springfield to vote for the Thon bill.

Fred L. Woodworth of Caseville has been appointed by Governor-Elect Sleeper as dairy and food commissioner of Michigan for the coming two years. Mr. Woodworth was born in Huron County, Michigan, in 1877 and has since resided there. By occupation he has been a farmer and is a graduate of Michigan Agricultural College. He served four years in the Michigan House of Representatives, from 1909 to 1912, and has just completed a four-year term in the Michigan State Senate. He promises to be a live-wire for the next two years in the Michigan dairy and food department.

Amateurish Legislation.

As a natural accompaniment to the present widespread interest in prohibition, a number of state legislatures are being asked to consider prohibition bills. Without attempting to discuss that interesting subject, it is certainly pertinent at this time to point out that a great many so-called prohibition bills are so crudely drawn as to, if enacted, kill the perfectly legitimate traffic in flavoring extracts, perfumes, toilet preparations, ordinary household remedies and patent or proprietary medicines sold in good faith and not as intoxicating beverages. It is a sorry commentary upon the intelligence of those chosen to represent us at our various state capitols that it seems to be impossible for them to express themselves with any degree of clarity. In no case has the suspicion arisen that the state legislators are covertly attacking the lines of industry just enumerated. They are after the liquor trade, as such, and no one is more surprised than they when their attention is brought to the fact that whoever drafted the bill was so careless in its wording as to render its scope much more inclusive than was intended. At the present moment there are up for action the following bills of such nature: Tennessee Senate Bill No. 85, Massachusetts House Bill No. 358, Arkansas Senate Bill No. 30, Texas House and Senate Joint Resolution No. 1, Kansas House Bill No. 66 and New Mexico Joint Senate Resolution No. 2. The foregoing are but few among many, but happen to be those whose numbers we have before us at the moment. Those of our readers who live in states in which prohibition is a live issue, may feel quite safe in assuming that in all probability there is at the present moment just that sort of bill before their state legislature.

Peanut Butter vs. Candy.

It is not often that one feels obliged to criticise the Beech-Nut Packing Company. It is an excellent company and sells excellent products of many sorts. When, as they are now doing, they permit their peanut butter to be advertised under the heading, "Do your children eat too much candy?" it is fair to assume that "somebody blundered." But it was an unfortunate blunder. Peanut butter is a fine product—and so is candy. They are both prime favorites in many well-regulated households where there are little ones. A demand for the new delicacy can be created without making use of the old, absurd tradition against candy. Most of us are still puritans—what we like must be bad for us. Also, until recently candy has been rather expensive, and one of the favorite methods of avoiding admission of our inability to buy for little Johnnie the candy he so fondly craves is to tell him that "it is not good for him." Candy *is* good for little Johnnie. It is one of the best energy producers in our dietary and, used properly, is no more likely to be eaten in excess than is any other toothsome edible. One of the pleasant tasks before this Journal is to help spread the gospel of the peanut. But it will make the task an unpleasant one, indeed, if those who sell that product seek to do so by means of invidious comparisons, and especially so if their comparisons are untenable.

Food Commissioner or Dairy Commissioner.

Sometimes it is puzzling to know whether the official termed "Dairy and Food Commissioner" and placed at the head of that state department which controls the manufacture and sale of food within its borders is a representative of the people or a representative of the dairy interests. In the minds of the dairymen he is evidently the latter, as is shown by the following astonishing quotation from the January 2nd issue of the *Chicago Dairy Produce*:

> If the newspaper reports are correct, they must have a queer dairy and food commissioner down in Kansas. The Kansas City *Star* in a late issue says:
>
> *"W. H. Phipps, dairy and food commissioner, has been giving the following advice to persons who call him up to inquire:*
>
> *"'The only objection to the substitute is that it is not quite as digestible as butter.*

> *"'Personally I want to see the dairy interests advance, because it means much to the country in an agricultural way, but my first concern is the consumer, and I am frankly recommending the substitute.*
>
> *"'So far as I have observed, the substitutes are made under cleaner and more sanitary regulations than those under which butter usually is produced.'"*
>
> Mr. Phipps has a queer conception of his duties to the dairymen of his state. We have always supposed that the duties of a dairy and food commissioner was to promote, upbuild and improve dairy conditions in his state, that is, aid in the production, manufacture and sale of dairy products. We fail to see wherein he is doing any of these things when he advises people to eat oleomargarine. We have no objection to the sale and consumption of oleomargarine so long as it is bought and consumed for what it really is; but a public official who draws his salary for doing a certain kind of work, to advise the use of a substitute for the product he is paid to protect, promote and upbuild, has a mighty queer conception of his duties.

This is of interest, not so much because of any statements of fact (indeed, the facts are all wrong) but because of the brazen manner in which a dairy trade paper claims ownership of this supposed "dairy and food commissioner." It happens that Mr. Phipps is not dairy and food commissioner for Kansas nor for Missouri (Kansas City was located in Missouri, at last reports). He is a Kansas City municipal officer, but that does not alter the case. If the editor of the *Chicago Dairy Produce* will consult the code of Kansas, or Missouri, or any other state, he will find that the duties of dairy and food commissioner are most distinctly *not* confined to "aiding in the production, manufacture and sale of dairy products."

The Metric System.

Practically every civilized country, barring this country and Great Britain, now uses the metric system. There are no valid arguments against its use; the arguments in its favor are many and varied. When our ancestors left the "tight little isle" they brought with them much that was good, but unfortunately they thoughtlessly brought and transplanted in this country the hodgepodge of various units of mensuration, both gravimetric and volumetric, which form an unhappy peculiarity of the British system. The only absurdity they overlooked was the British pounds, shillings and pence, for which we should be devoutly thankful. Since the origination of the metric system, which is thoroughly scientific and extremely easy of application, various countries have adopted it as official and have made its use compulsory. It is employed in all scientific work and there is no denying the fact that a logical, simple method of measuring and weighing renders more easy the accomplishment of tangible results in research work and also lessens the expense of handling articles in commerce. It is to be hoped that the organization recently formed for the purpose of endeavoring to bring about national action in this connection will meet with success. It is also to be hoped that they will see fit to include the compulsory use of the centigrade thermometer in place of the one at present in common use.

Utilitarian Lantern Slides.

All who are anxious to obtain lantern slides descriptive of modern industry should send for the new catalog of the McIntosh Stereopticon Company of Chicago. This company is specializing in the production of views illustrative of modern industry in all of its phases and has on hand a large number of excellent negatives. Demonstrators, lecturers and those whose duty it is to illustrate text articles should be particularly interested. Incidentally, it was an oversight on our part to have failed to have mentioned last month that the illustrations of the article on "The Manufacture of Flour" came to us through the courtesy of the McIntosh Stereopticon Company.

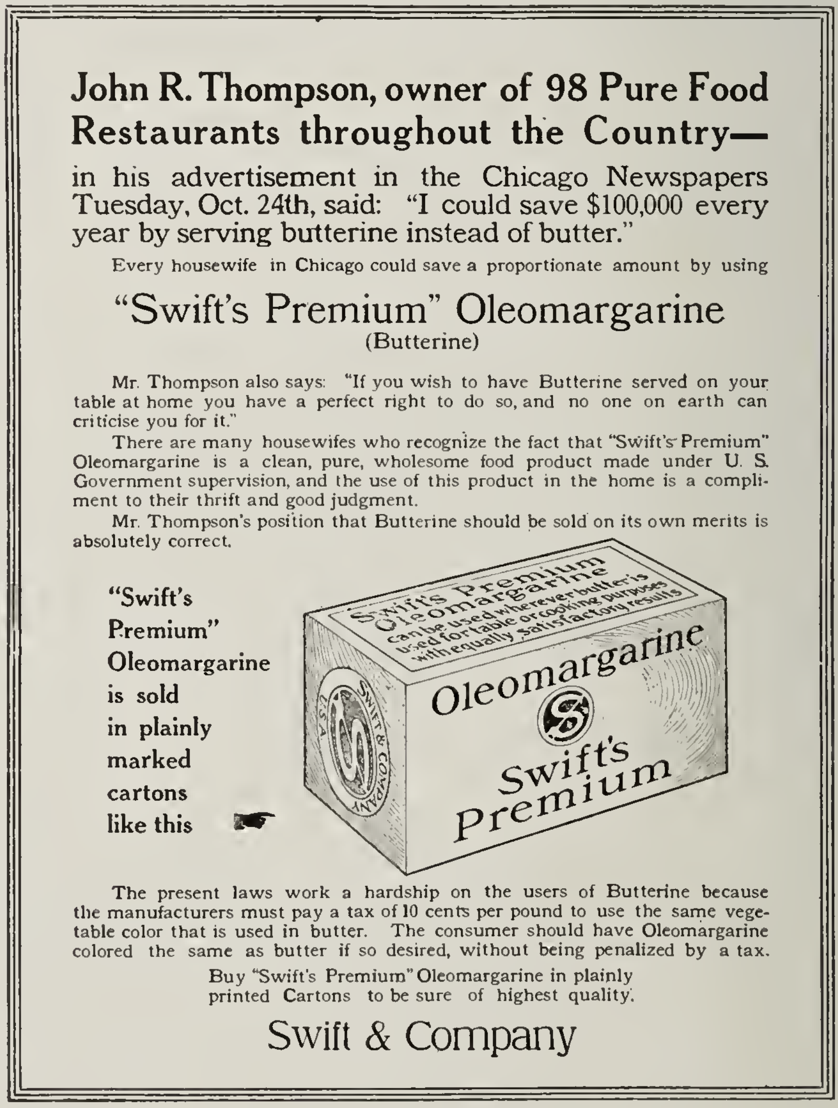
Otto Murschel, newly appointed food, drug, dairy and oil commissioner of Nebraska was born at Iowa City, Ia., April 2, 1868. His early education was obtained in the public schools of that place. While still a schoolboy, however, he began work in a drug store and continued in that calling for some time. At the age of 18 he moved to Nebraska. He remained at Omaha for a short time and then went to Ord, where he has made his home since. For several years he conducted a bakery and confectionery business. In 1912 he disposed of this to become county clerk of Valley County. He held this position for five years. In 1914 he was selected by Governor Morehead for one of the important positions on the state fire commission. He held that place throughout the balance of the Morehead administration. When Governor Neville was casting about for a man to succeed C. E. Harman in the important post of food commissioner, he investigated Mr. Murschel's record and qualifications for the place. He soon decided that the Ord man would fill the bill and the appointment was announced two weeks in advance of the inauguration of the new executive.

John Alfred Roberts, son of John M. and Mary E. (Potter) Roberts, was born at Gardiner, Maine, September 10, 1852. His preparatory education was acquired at Oxford Normal Institute; later he attended Bowdoin College where he obtained the degree of A. B. in 1877. Mr. Roberts read law in the offices of Hon. T. M. Ludden of Lewiston, and C. E. Holt of Norway, and was admitted to the bar in 1878, practicing law at Mechanic Falls. About 1880 he became actively engaged in agricultural interests at Norway, where he was for several years associated with C. B. Cummings & Company. On August 24, 1881, he married Miss Carrie A. Pike of Norway.

Commissioner Roberts is not a stranger to public service inasmuch as he was a member of the Maine House of Representatives from 1893 to 1895 and of the Senate during 1897 and 1898; president of the Oxford County Agricultural Society from 1893 to 1899; president of the Board of Managers of the Norway Public Library and member of the Board of Trustees of the University of Maine. Mr. Roberts is a member of the Patrons of Husbandry and was overseer of the Maine State Grange from 1893 to 1897. In 1913, Mr. Roberts was elected Commissioner of Agriculture for Maine. After an interval of two years, Mr. Roberts was again elected in January of the present year to the position of Commissioner of Agriculture. The commissioner is an enthusiastic supporter of all that tends to promote the interests of agriculture, a quality that will make itself felt in the work of the department. It will be recalled that in 1914, when the National Association of Dairy, Food and Drug Officials held its annual convention at Portland, Maine, Mr. Roberts served as president of Section A.

Butterine.

For some time past Mr. John R. Thompson, who conducts ninety-eight restaurants, has been broadly advertising the fact that although he could save $100,000 a year by so doing, he refuses to serve his patrons with butterine instead of butter. That is an entirely justifiable statement, and Mr. Thompson is, no doubt, well warranted in making it. Probably in drafting his advertising copy he merely wished to go on record with the statement that under no circumstances would he serve to his patrons a substitute of any kind in place of the article they assumed they were getting. It is considered quite the proper thing to capitalize prejudices of every sort, no matter how indefensible they may be, and butterine has been held to scorn by so many butter makers that no doubt Mr. Thompson's move was natural enough to a restaurateur. However, what is sauce for the gander is sauce for the goose. If Mr. Thompson, serving untold thousands daily, could, by the simple expedient of serving butterine instead of butter, save $100,000 per annum, possibly the wives of some of Mr. Thompson's noon-day customers might, by the same expedient, save a proportionate figure. Some such thought evidently went through the minds of those responsible for the advertising of butterine as the accompanying illustration shows.


Swift's Premium
Oleomargarine
can be used wherever butter is
used for table or cooking purposes
with equally satisfactory results
Oleomargarine
S
Swift's
Premium
Swift & Company
U.S.A.
S

John R. Thompson, owner of 98 Pure Food Restaurants throughout the Country—

in his advertisement in the Chicago Newspapers Tuesday, Oct. 24th, said: "I could save $100,000 every year by serving butterine instead of butter."

Every housewife in Chicago could save a proportionate amount by using

"Swift's Premium" Oleomargarine
(Butterine)

Mr. Thompson also says: "If you wish to have Butterine served on your table at home you have a perfect right to do so, and no one on earth can criticise you for it."

There are many housewifes who recognize the fact that "Swift's Premium" Oleomargarine is a clean, pure, wholesome food product made under U. S. Government supervision, and the use of this product in the home is a compliment to their thrift and good judgment.

Mr. Thompson's position that Butterine should be sold on its own merits is absolutely correct.

"Swift's Premium" Oleomargarine is sold in plainly marked cartons like this ☛

The present laws work a hardship on the users of Butterine because the manufacturers must pay a tax of 10 cents per pound to use the same vegetable color that is used in butter. The consumer should have Oleomargarine colored the same as butter if so desired, without being penalized by a tax.

Buy "Swift's Premium" Oleomargarine in plainly
printed Cartons to be sure of highest quality.

Swift & Company

It is to be observed that Mr. Thompson, in small type, makes the *amende honorable* by stating "If you wish to have butterine served on your own table at home you have a perfect right to do so, and no one can criticise you for it." It would be difficult to cite a single instance which would more succinctly show the false logic behind the present margarine law—a business man capitalizing a popular prejudice which, in small type, he admits is unwarranted.

Senate Bill No. 7840

Introduced by Hon. Wesley L. Jones, Republican Senator from Washington

A BILL for securing the uniform grading of food, preventing deception in transactions in food, and regulating traffic therein, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that this Act shall be known by the short title of the "United States Food Grades Act."

Sec. 2. That the Secretary of Agriculture is hereby authorized and directed to establish, as soon as may be after the enactment hereof, standards of quality for all such articles of foods as in his judgment the usages of the trade may permit, and the Secretary of Agriculture shall have power to alter or modify such standards whenever the necessities of the trade may require. In promulgating the standards, or any alteration or modification of such standards, the secretary shall specify the date or dates when the same shall become effective and shall give the public notice, not less than sixty days in advance of such date or dates, by such means as he deems proper.

Sec. 3. That the standards so fixed and established shall be known as the Official Food Standards of the United States.

Sec. 4. That the Secretary of Agriculture shall examine all food samples submitted to him, and, if possible, classify the same under the established standards, and thereafter the person submitting the same for examination may publicly represent food of the same character and quality as the sample to be of the Government standard under which it has been classified.

Sec. 5. That, wherever possible the Secretary of Agriculture shall, upon request, notify persons submitting food samples as to what changes will be necessary therein to conform to the established standards.

Sec. 6. That the Secretary of Agriculture shall charge, assess, and cause to be collected a reasonable fee in amount to be fixed by him, and as nearly as possible to cover the cost of investigation and classification, from those who submit samples of food for classification.

Sec. 7. That no person shall ship or deliver for shipment from any State, Territory, or District to or through any other State, Territory, or District or any foreign country, food represented to be of certain Government standards unless samples thereof have heretofore been submitted to the Secretary of Agriculture and by him classified under such standards and of the character and quality of such samples and standards.

Sec. 8. That no person shall represent any food to be of certain Government standards unless samples thereof have heretofore been submitted to the Secretary of Agriculture and by him classified under such standards.

Sec. 9. That there shall be a board of as many persons as may be necessary, selected by the Secretary of Agriculture, chosen from the classified service, who shall recommend food standards to be established by the Secretary of Agriculture and who shall examine food samples submitted hereunder for and on behalf of the Secretary of Agriculture, and the Secretary of Agriculture shall follow the findings and recommendations of such board unless he shall be convinced that it is unwise to do so.

Sec. 10. That the Secretary of Agriculture shall from time to time make such rules and regulations as he may deem necessary for the efficient execution of the provisions of this Act.

Sec. 11. That any person who shall violate any of the provisions of Sections 7 and 8 of this Act shall be guilty of a misdemeanor and upon conviction thereof shall be fined not more than $1,000 or be imprisoned not more than one year, or be punished by both fine and imprisonment.

Sec. 12. That the word "person" wherever used in this Act shall be construed to import the plural or singular as the case demands and shall include individuals, corporations, companies, societies, or associations.

Sec. 13. That there shall be appropriated out of any money in the Treasury not otherwise appropriated the sum of $20,000, which shall be available until expended for the expenses of carrying into effect the provisions of this Act, including rent and the employment under civil service regulations of such persons as the Secretary of Agriculture may deem necessary in the city of Washington and elsewhere.

The Jones Bill.

While we have it on most excellent authority that no action is to be taken on this bill at this session of Congress, nevertheless it should be read carefully as it indicates the probable method by which Secretary Houston's recent recommendation will be put before Congress. There is also the ever-present possibility that while a bill of this nature is peacefully slumbering in a committee room, the gist of the bill will be embodied in an appropriation measure and in that way unostentatiously become law upon the passage of the appropriation bill.

Cold Storage Warehouse Legislation.

This seems to be an open season for gunning for the cold storage warehouse men. Practically every state legislature has, or seems likely soon to have, before it a bill designed to regulate the storage of food. The bills examined so far seem to be much alike, and, after making proper provisions as to sanitary matters, call for time limits of great particularity, the dates of receipts and withdrawals, and certain other features which would seem to be aimed at the food speculators. Proper provision for the sanitary condition of food held in cold storage is highly desirable; some sort of control of the vicious practice of speculating in foodstuffs is equally desirable; but whether or not it is wise to endeavor to combine the two in a law regulating cold storage houses would seem to be an open question. Compliance with the present bills, if they are made law, will render the storage of food increasingly expensive. Bookkeeping entries and similar details aimed to regulate speculation should in some way be charged to the speculator and not to the food in which he speculates.

The American Food Journal

R. G. GOULD, President.

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All reading and advertising matter to appear in THE AMERICAN FOOD JOURNAL must be received at this office on or before the 27th day of the month preceding publication.

We claim no responsibility for the views or opinions expressed by contributors.

The ownership of The American Food Journal is vested solely in the officers of the company. No person, firm or corporation, either directly or indirectly connected with the business it represents, has any share in its ownership or voice in shaping its policy which has in view at all times the best interests of the field it serves. It aims to discuss all subjects fairly, and to furnish its readers information concerning the progress and development of the food industries. It will answer any questions concerning the business to the best of its ability, and it asks its readers in all parts of the world to aid it with inquiries and suggestions, to which it will give prompt and earnest consideration.

Chairman Hurley Resigns.

Edwin N. Hurley, whose resignation from the chairmanship of the Federal Trade Commission has been announced, has made arrangements for resuming business connections with the Hurley Machine Company, of Chicago, of which he was formerly president.

W. Parker Jones, Attorney-at-Law, Union Trust Building, Washington, D. C.

W. Parker Jones announces his resignation from the United States Department of Agriculture after eight years' service as assistant solicitor of the department and assistant chief of the bureau of chemistry. He has opened offices for the practice of law, specializing in matters before the United States courts and the several departments and commissions of the government.

Dr. Cutler Resigns.

Dr. William P. Cutler has resigned as secretary of the American Manufacturers' Association of Products from Corn. Mr. H. W. Green, who has been acting in the capacity of treasurer, will assume the additional duties of secretary. While Dr. Cutler is no longer the official representative of the corn products industry he has been retained by the Association to look after certain matters which have hitherto been a part of his secretarial duties, a service which he is now free to offer others who may be interested.

Report of Cold Storage Holding of Apples January 1, 1917.

Reports from 469 storages show that their rooms contain 2,386,975 barrels and 3,807,857 boxes of apples. Holdings reported from 364 storages showed 2,204,833 barrels and 3,542,322 boxes on January 1 as compared with 3,743,055 barrels and 3,209,503 boxes on the same date a year ago, a decrease of 29.7%. The barreled apple holdings show a decrease of 41.1% and the boxed apples an increase of 10.4% as compared with those of last year. Our report of January 1st last year showed the amount stored to be 9.8% greater than on January 1, 1915. The holdings have decreased 10.4% since December 1 as compared with a decrease of 12% during December, 1915, and 14% during December, 1914.

Report of Cold Storage Holdings of Creamery Butter, January 1, 1917.

Reports from 268 cold storages show that their rooms contain 45,996,514 pounds of creamery butter, while on December 1, 269 storages reported 61,158,731 pounds. The 227 storages that reported holdings on January 1 of this year and last show a present stock of 44,673,639 pounds as compared with 48,977,322 pounds last year, a difference of 4,303,683 pounds, or 8.8%. The reports of 248 storages show that during December the December 1 holdings decreased 17,590,367 pounds, or 29.1%, while our last report showed that during November the holdings of 193 storages decreased 18,931,058 pounds, or 23.9%. Last year the decrease during December was 24,853,219 pounds or 34.7%, and in November was 20,298,903 pounds, or 22.2%.

Report of Cold Storage Holdings of American Cheese, January 1, 1917.

Reports from 322 cold storages show that their rooms contain 31,288,139 pounds of American cheese, while on December 1, 314 storages reported 34,710,448 pounds. The 247 storages that reported holdings on January 1 of this year and last show a present stock of 24,879,643 pounds as compared with 28,558,370 pounds last year, a difference of 3,678,727 pounds, or 12.9%. The reports of 291 storages show that during December the December 1 holdings decreased 4,734,600 pounds, or 14.1%, while our last report showed that during November the holdings of 212 storages decreased 5,736,369 pounds, or 15.3%. Last year the decrease during December was 5,300,533 pounds, or 17%, and in November was 3,028,787 pounds, or 9.3%.

Report of Cold Storage Holdings of Eggs, January 1, 1917.

Reports from 304 cold storages show that their rooms contain 913,324 cases of eggs, while on December 1, 272 storages reported 2,121,119 cases. The 261 storages that reported holdings on January 1 of this year and last show a present stock of 876,790 cases as compared with 1,507,720 cases last year, a difference of 630,930 cases, or 41.8%. The reports of 272 storages show that during December the December 1 holdings decreased 1,192,518 cases, or 57.1%, while our last report showed that during November the holdings of 215 storages decreased 1,436,154 cases, or 40.6%. Last year the decrease during December was 1,351,330 cases, or 49.1%, and in November was 1,254,134 cases, or 31.2%.

Report of Stocks of Frozen and Cured Meats, January 1, 1917.

The total stocks of frozen beef reported by 197 firms on January 1 amounted to 168,995,099 pounds, while the total stocks reported by 195 firms on December 1 amounted to 134,025,301 pounds.

The total stocks of cured beef reported by 213 firms on January 1 amounted to 39,606,464 pounds, while the total stocks reported by 240 firms on December 1 amounted to 39,885,298 pounds.

The total stocks of frozen pork reported by 167 firms on January 1 amounted to 49,895,432 pounds, while the total stocks reported by 134 firms on December 1 amounted to 29,686,065 pounds.

The total stocks of dry salt pork reported by 275 firms on January 1 amounted to 196,018,233 pounds, while the total stocks reported by 310 firms on December 1 amounted to 133,350,108 pounds.

The total stocks of sweet pickled pork reported by 337 firms on January 1 amounted to 277,615,800 pounds, while the total stocks reported by 381 firms on December 1 amounted to 215,920,402 pounds.

The total stocks of lard reported by 306 firms on January 1 amounted to 80,117,252 pounds, while the total stocks reported by 343 firms on December 1 amounted to 53,879,570 pounds.

The total stocks of frozen lamb and mutton reported by 102 firms on Jannary 1 amounted to 5,505,257 pounds, while the total stocks reported by 113 firms on December 1 amounted to 5,405,868 pounds.

Food Standards—A Symposium by Our Readers

The following expressions of opinion relative to the recommendation of Secretary of Agriculture Houston that legal standards for foods be adopted come from practically all branches of the industry. As will be observed, there are many shades of opinion expressed.—*Editor's note.*

California State Board of Health.
Bureau of Foods and Drugs.

From the viewpoint of enforcing the food and drug laws, standards are not only advisable but necessary. In all cases where a definite standard is established by law, we have very little difficulty in maintaining our position, but in cases where a definite standard is not established by law, it is often impossible to convince a judge, or jury, that a reasonable standard should be maintained.

The Food Inspection Decisions of the Bureau of Chemistry, U. S. Department of Agriculture, automatically become law in this state. Prior to the publicaion of F. I. D. No. 162, Egg Noodles and Plain Noodles, we could not successfully prosecute unless the noodles contained no egg at all. Now we are practically sure of conviction in every case where the quantity of egg falls materially below the standard.

A Los Angeles judge recently acquitted a defendant on a charge of adulteration of macaroons containing over 50% wheat flour because he declared that there was no standard for macaroons. The inspector appearing in the case cited the dictionary definition and the U. S. Service and Regulatory Announcement concerning macaroon paste, but the judge held that these were not law. Numerous other examples might be cited.

It requires a great deal of time and labor to make standards, but after they are made and put in legal form the difficulties in enforcing food and drug laws are materially lessened.

From our point of view I would say, 'Give us as many standards as possible.

January 15, 1917. E. J. Lea,
Berkeley, Calif. *Director.*

Colorado Board of Health
Pure Food and Drug Department.

We heartily approve the efforts of the Secretary of Agriculture to obtain certain authority to establish food standards in connection with the food control work of the Bureau of Chemistry. In this connection we are asking from the present State Assembly an amendment to the Colorado Food and Drugs Act, which will empower the State Board of Health to fix food standards in conformity with those which have been, or may be, promulgated by the United States Bureau of Chemistry.

John Lynch,
January 17, 1917. *Commissioner.*
Denver, Colo.

Iowa Dairy and Food Commission.

I concur in what Secretary Houston said in his annual report relative to standards for foods and drugs.

Fair and just standards work a hardship on no one, they promote fair dealing and control unfair competition. The fact that some dealers consider a standard a limit to which they may permit the quality of their product to fall rather than a limit beyond which the product must not fall is a condition which must be met by other means than that of having no limit.

I am heartily in favor of standards but only of such standards as are adopted after a hearing of all affected by such standards.

January 12, 1917. W. B. Barney,
Des Moines, Ia. *Commissioner.*

Kansas State Board of Health.

I am unqualifiedly in favor of having Federal food standards. In my judgment the necessity for such standards in food control work very greatly outweighs the arguments advanced against the adoption of such standards.

January 18, 1917. S. J. Crumbine, M. D.
Topeka, Kans. *Secretary.*

Massachusetts Department of Health,
Division of Food and Drugs.

I am personally of the opinion that we need but very few standards for food. The standards which we have should in all cases be statutory and should be confined to a few manufactured articles, such as ice cream, cream, condensed milk, sausages and vinegar. In addition to these, statutory milk standards are desirable in order to prevent the adulteration of milk through the medium of the cow.

In general, there is no difficulty whatever in proving cases of adulteration by using the various standard dictionaries of the English language to establish the quality of the article in question. As an example of this character of standard, I would refer you to the case brought by the Food Commissioner of Michigan and won by him in the Supreme Court, relative to the addition of starch to sausages. Before we had our present sausage standard in Massachusetts I used this very decision in this state and succeeded in convicting a sausage manufacturer for adding starch to frankfort sausages.

In general, standards are minimum standards, and if such are legally established it gives an incentive to the dealers to depreciate their goods until they conform to these standards. This, perhaps, can be illustrated best by a comparison of the milk sold in the various cities and towns throughout the United States. In those states where the standards are the highest, the quality of the milk sold is also of the highest, and in those states where the standards for milk are lowest the quality of the milk sold is also of the lowest.

There is no necessity of making and publishing alleged standards unless the publication of such standards carries with it the authority of enforcing these standards.

Hermann C. Lythgoe,
January 16, 1917. *Director.*
Boston, Mass.

State of Minnesota,
Dairy and Food Department.

I am not in favor of extending authority of that character to any person or, for that matter, to any department of the Government. I am of the opinion that it is wrong, nay, indefensible, to place in jeopardy the manufacturing industries engaged in producing package foods because of the notions of any man or body of men, able and competent though they may be. Furthermore, the delegation of such power is of doubtful legality: it smacks strongly of imperialism.

The last word on the standards of foods has not been said, and will not be for years to come. I entertain the idea that we will progress in that as in other matters after the present food control officials, national and state, have joined the great majority and are forgotten. Upon the passage of the Food and Drugs Act of June 30, 1906, very able lawyers pointed out the necessity of embodying food standards in the act. Such legal lights as Senators Spooner, Bailey and Aldrich, and Congressman Mann showed how vital and necessary it was that said standards be embodied in the statute to make it effective. To attempt at this time by indirection to effect a cure is merely doing the right thing in the wrong way.

The Supreme Court of the U. S. has said, in relation to the heads of departments: 'They may aid in carrying the law as it exists into execution, but they cannot change its positive provisions.' Again, 'The Secretary of the Treasury cannot, by his regulations, alter or amend the revenue law. All he can do is to regulate the mode of proceedings to carry into effect what Congress has enacted.' That being true, by what method are the powers of the Secretary of Agriculture to be enlarged so as to legalize such standards as he may adopt?

I am heartily in favor of standards of excellence in foods, but desire to see them a part of the statute to which they apply. For several years we have had a Standards Committee, composed of state and Federal officials. Such conclusions as they have reached may be excellent, but they are merely tentative in character and may be set aside by any court for the reason that they are unauthorized by law.

I am of the opinion that the label may be used for the purpose of creating standards of excellence in foods, viz., by compelling the statement thereon of the names and percentages of each ingredient, the net weight or measure of the contents, and the name and address of the manufacturer or wholesaler. The consumer can then know whether or not he or she desires to purchase that product or another. They are entitled to know just what they are paying for. Why not give them credit of being capable of making an intelligent selection?

It has been said that the Department of Agriculture is without authority to approve labels. They frequently disapprove labels; that being true, it is a logical conclusion that the law which confers such authority also confers authority to approve. To reason otherwise seems like dodging the question.

J. J. Farrel,
Commissioner.

January 22, 1917.
St. Paul, Minn.

State of Missouri.
Food and Drug Department.

The making and enforcement of food standards is, in my judgment, one of the most necessary and important portions of the functions of the Food and Drug Department. The standards should be based upon the most careful investigation, so as to make them equally fair to the producer and to the consumer. This is particularly true in the case of dairy products and composite foods, where the standards are too high or exacting, and there is always a disposition to avoid them, but if a fair basis be reached, then I believe there will be a more or less universal compliance with these standards.

In addition to the investigation that I have mentioned, the standards adopted should be made capable of enforcement, as I understand that there is a considerable difference of opinon among legal experts as to whether standards made by food and drug authorities, even under the direction of the law, can be enforced, as they constitute an illegal delegation of legislative power. I am not a legal expert, and, therefore, not qualified to pass upon this matter, but it occurs to me that the best possible way to make standards legally effective is to have them passed in the shape of laws with specific penalties for their violation.

I emphasize the necessity for specific penalties for their violation, because of the fact that I have brought several prosecutions in this state for violation of standards, under the general food and drug laws, as our statute books do not contain any specific provisions for violation of standards, and I found that several of the courts take the view that in the absence of a statute providing a specific penalty for violation of standards, no conviction against a violation of these standards could be had. While I am informed that these views cannot be regarded as correct, yet it seems to me that no loophole should be left in the enforcement of such an important portion of the food and drug laws.

In my experience proper, reasonable and effective standards of foods are vitally necessary to the success of the food and drug departments, Federal and State.

January 18, 1917. F. H. Fricke,
St. Louis, Mo. *Commissioner.*

State of New Hampshire.
State Board of Health.

I heartily endorse Secretary Houston's recommendation and trust it will be adopted. To offer any extended argument in this connection would seem superfluous at this time. What the secretary says covers the situation exactly.

January 17, 1917. Charles D. Howard,
Concord, N. H. *Chemist.*

North Dakota Agricultural College.

In my judgment there is no legislation so essential for the success of the Food Law as a measure for the protection of the public and the establishment of food standards. There is no measure that will do so much to bring about uniformity as standards and definitions when properly established. It is impossible, with from five to twenty measures in each state bearing on the question of food laws, to secure changes that would harmonize them all throughout the country in the forty-eight states; and conditions differ in the several states so that such would be impractical even though it were desirable. But were uniform standards and definitions established for the guidance of the food commissioners and for the use of the courts in the several states, uniformity of practice would generally prevail, and we should hear very little with regard to a law of uniformity in food matters.

January 12, 1917. E. F. Ladd,
Agricultural College, N. D. *President.*

Ohio Board of Agriculture.
Dairy and Food Division.

My opinion is that the standards should be elevated rather than reduced. If compounds and mixtures are manufactured to reduce the cost they should be so labeled on each package to enable the public to know what they are buying.

The questions of standards and costs are large ones and have been given a great deal of thought and study by food experts. It occurs to me the trouble is not only with the high cost of living but much of it is due to the cost of high living.

January, 17, 1917. T. L. Calvert,
Columbus, Ohio. *Chief of Division.*

State of Oklahoma,
Department of Public Health.

I am emphatically in favor of any action by either state or Federal authorities which will tend to raise our food standards. In Oklahoma an extensive campaign has been begun under the direction of the State Board of Health to ensure the purity of the foods, drugs and beverages used by the people of the state. This campaign will be followed up and we are in full sympathy with any measures which the Federal Government may take to raise the standard of interstate shipments.

January 17, 1917. John W. Duke,
Guthrie, Okla. *Commissioner.*

Pennsylvania Department of Agriculture.
Dairy and Food Bureau.

It is a step in the right direction.

January 16, 1917. James Foust,
Harrisburg, Pa. *Commissioner.*

State of South Carolina.
Department of Agriculture, Commerce and Industries.

I most heartily concur with every view expressed in Secretary Houston's report.

In the enforcement of police power laws extending over a period of a number of years my observation has been that, if the honest manufacturer is to be protected from cutthroat competition, as well as protection be afforded to the consumer, the enforcement of definite standards is absolutely vital. Under most of the police power laws of this state covering other and kindred products we fix definite but reasonable standards and we require absolutely that those standards shall be lived up to. Until this was done the markets of this state were a dumping ground for inferior products sold to people absolutely ignorant of the quality on the representation that they were of superior quality. In fact the thing had become so bad that really high priced products had absolutely been run out of the markets of the state. I am even more pronounced than the secretary in regard to this matter and as an official who has had varied experience with protective laws I do not hesitate to say that definite and reasonable standards are absolutely indispensable if there is to be intelligent and proper enforcement of the pure food and drug laws of both the United States and the several states. Today I have twenty times the protection for animal feeds in South Carolina under both laws than I have for human foods and drugs. We can protect the hog, but under present condtions it is almost impossible to protect a human being. The only mystery to me is that something of this kind was not attempted by the National Government years ago.

January 12, 1917. E. J. WATSON,
Columbia, S. C. *Commissioner.*

Department of Foods and Drugs, State of Tennessee.

Secretary Houston's recommendations that the Secretary be authorized to establish standards of strength, quality or purity for articles of food and for those articles of drugs which are sold under or by a name not recognized in the U. S. Pharmacopoeia or National Formulary meets with my entire approval.

There is little that can be said in addition to the Secretary's request along this line, for the very reason that I am heartily in accord with his views from every angle. Without authority of this kind officials having the enforcement of the Food and Drugs law of both Government and State are sadly handicapped. It would seem that a procedure such as recommended by Mr. Houston would be of untold value to the honest manufacturer, and would be equally detrimental to the interests of those who choose to create a business that would be of very uncertain value to the consuming public. The authority requested would undoubtedly be of great benefit and protection to the consumer.

It of course is an indisputable fact that it will be utterly impossible and impractical to establish standards for each and every item of food and drugs by legislative enactment—the field being too large and the circumstances covering too great a scope. This being a fact there seems to be nothing left for the lawmaking bodies but to place the authority for the establishment of standards in the hands of those who are responsible as to the enforcement of food and drugs laws. The one having the enforcement of these laws being in a far better position to adopt standards that are reasonble and fair to the legitimate manufacturer, and for the more certain protection of the consuming public. One of the greatest benefits to be derived by the adoption of this method would be to promote a uniformity of laws among the various States, thereby being better able to co-operate with each other, and the States as a whole would be in a position to better assist the United States Government, and the United States to in turn lend their aid.

January 24, 1917. HARRY L. ESKEW,
Nashville, Tenn. *Commissioner.*

* * *

Opinions from the Trade.

We are in receipt of your letter of the 18th inst. in reference to standardization of food products, especially along the lines recommended by Secretary Houston.

In reply to same would say that we are quite in accord with this suggestion, feeling that by so standardizing, not only is the consumer protected, which of course is the first consideration, but the legitimate and honest manufacturer is also protected in his efforts to maintain the quality and standard of his products.

January 20, 1917. HORLICK'S MALTED MILK COMPANY,
Racine, Wis. A. J. HORLICK, Vice-President.

We believe in food standards, but we also want such standards very carefully investigated before they are made, and, incidentally, we want them to be made by practical men as well as by technical men and idealists.

January 20, 1917. MCCORMICK & CO.
Baltimore, Md.

We gladly lend our endorsement to any authoritative movement to fix standards for articles of food, and have long advocated that the United States Government should be sponsors to this rather than have this function assumed by self-appointed pure food guardians without official status, who usually connect themselves with publications who capitalize the reputations of these so-called food experts.

The present lack of official United States standards for certain articles is one of the greatest handicaps under which a conscientious manufacturer or packer has to labor. For instance, the present official standard for olive oil is that it must be oil that has been pressed from olives. This, as far as governmental standard goes, makes fresh olive oil pressed from good quality olives in the same class with olive oil that has been pressed from poor olives and put through chemical process to eliminate objectionable color and taste of oil that has the taste of inferior quality oil.

It is also obviously unfair that the manufacturer of salad dressing, composed of such wholesome as well as comparatively expensive ingredients as eggs and olive oil, should have to compete on an equal basis, as far as Government standards go, with the manufacturer of salad dressing prepared with flavored and colored starch and gum paste, and oils that are usually substituted for olive oil to cut down the cost.

The manufacturer and packer whose standard is as high as it should be cannot be harmed by intelligently made legal standards, and only those manufacturers or packers who are not trying to put up the best, or trying to sell one thing for another, would have cause for objecting to what Secretary Houston has suggested. Of course, it goes without saying that when the United States Government establishes legally forcible standards, that adequate inspection should be provided, so that manufacturers, jobbers, retailers and consumers will have the proper respect for the standards.

January 20, 1917. THE POMPEIAN CO.
Baltimore, Md.

Legal food standards are desirable. Power to draft such standards, we believe, would be best entrusted to a commission by Congress under the following conditions:

First—If the commission was authorized by an act of Congress other than an appropriation act.

Second—If the commission should be a representative body in which the trade should have equal representation with officialdom.

Third—If the powers and duties of such commission should be limited and defined in the act itself.

Fourth—If all hearings and all committee proceedings should be published for the benefit of the public at large.

Such act of Congress would best not be contained in an appropriation bill, because the courts have refused to recognize previous standards adopted under authority conferred in appropriation acts. That the trade whose very existence depends upon the justice of such standards be represented upon the commission needs no argument. The actions of previous standards commissions show clearly that their powers and duties have never been clearly understood, and, in the opinion of many of the members, were not limited in any manner.

Such commission should be forbidden to exclude by their definitions or standards, ingredients long used in an article and not forbidden by the terms of the Food and Drugs Act. Analytical requirements which would exclude wholesome, meritorious foods should not be adopted. It should be required that the commission hear opinions as to the relationship of the laws to the standard being discussed and argument should be permitted. In other words, those appearing before the committee with reference to products manufactured by them should have rights equal to those which they would have if their goods were on trial before a court.

If these definitions and standards are worth the money which it is proposed to appropriate in order to secure them, the facts considered in reaching the conclusions and the degree of unanimity of action reached by the commission are matters which are of public interest.

We do not believe that any commission should be employed to forbid the sale of any wholesome food product and we believe that the rights of a small manufacturer who has, without contravening the food and drugs act, continued a method of manufacture for many years, has an equal right to continue that method with the use of the same ingredients as has a larger manufacturer to his.

CALUMET BAKING POWDER CO.,
January 20, 1917. T. J. BRYAN,
Chicago, Ill. *Chief Chemist.*

What the Lawyers Think About It.

Personally, I favor the creation of a responsible and capable Federal Food Standards Commission through an act of Congress authorized and empowered to recommend standards for food products to the Secretary of Agriculture, which standards, upon the adoption of the Secretary, shall have a prima facie evidential value in the enforcement of the Federal Food and Drugs Act. I would only favor the creation of such a Commission, provided the food trade were represented thereon. This act should be in the form of a special amendment of the organic law, viz., the Federal Food and Drugs Act.

January 23, 1917. CHARLES WESLEY DUNN.
New York, N. Y.

Before favoring or resisting delegation of authority to the Secretary of Agriculture to establish standards for foods, manufacturers must first fully realize the danger of delegating to an executive department functions which are primarily legislative or judicial. There has been an unfortunate tendency on the part of Congress to delegate legislative powers to the executive departments, and while heretofore this question has been left largely to academic discussion among students of government, manufacturers are beginning to feel the effects of government by executive rulings.

The promulgation of definite standards for foods is an important element of food legislation, and in many respects as important as the law itself. Wherever possible, standards of purity and strength should be established by legislative enactment, after the public and interested manufacturers have had an opportunity to be heard by the law making body. In my opinion, there is potential danger in delegating to the Secretary of Agriculture the broad power of establishing food standards which have, in many cases, the force and effect of statute law. This is primarily a legislative function, to be exercised by Congress. If Congress cannot be induced to take upon itself this important but extremely onerous task, a commission composed of representative manufacturers, Federal and state food officials should be appointed by the President under authority of an act of Congress, which should definitely limit the powers and actions of the standards commission and determine the evidentiary value of such standards as are promulgated. Under the laws of many states the standards promulgated by the Secretary of Agriculture are automatically adopted, with practically the full force and effect of statute law. The authority of the standards commission should be legislatively limited to the promulgation of advisory definitions of strength and purity of foods, and should not limit methods of manufacture or the use of wholesome ingredients, not fraudulently employed. The science of food manufacture is yet in its infancy, and new products, new methods, new substitutes are being constantly discovered, with the demand for better and cheaper food.

It is a generally accepted fact that food standards are necessary for the guidance of both manufacturers and officials, but no standard should be established without full and impartial hearings before a commission made up, in part at least of manufacturers having full appreciation of manufacturing difficulties.

January 22, 1916. DANIEL R. FORBES.
Chicago, Ill.

The submission of the Secretary of Agriculture, in his annual estimates of appropriations, of a recommendation for the establishment of standards for foods and unofficial drugs brings to the attention of the Congress a means for solving some of the problems confronting both the officials engaged in administering food and drug laws and those whose business is affected by the operation of the laws. Lack of uniformity in the administration of these several laws in many instances has resulted in hardships and inconveniences to manufacturers. This lack of uniformity has been due not so much to differences in the terms of the laws themselves as to differences in interpretations of the laws by officials. The Federal Food and Drugs Act and those state laws which do not contain or provide specifically for standards for foods and unofficial drugs, but contain merely broad definitions of adulteration and misbranding, afford a fertile field for differences of interpretation. Under such laws it is often necessary to consider what are the normal ingredients of a food or an unofficial drug before proceeding to form an opinion whether an article sold by a certain name is misbranded or in some respects is adulterated. Without a fixed standard for comparison it remains for the official or for the individual to fix a standard for his own guidance. In this situation it is inevitable that there should be varying findings as to what are normal articles with resulting differences as to whether specific articles which do not conform to the concept of the normal articles are in violation of law. In some cases identical articles held by officials not to be adulterated or misbranded under one food and drug law have been declared contraband under another. In the enforcement of the Federal law it has happened that an article condemned in one jurisdiction has been acquitted in another, due to the adoption of one court, and the rejection by another, of the finding of the administrative officials as to what constituted the normal article as accepted by the trade and the public. The uneven enforcement of food and drug laws it is believed will be remedied in a great degree if by the enactment of appropriate legislation for the establishment of enforceable standards there be provided a certain and uniform measuring stick for determining whether separate articles of food and separate unofficial drugs are properly branded.

The legislation recommended by Secretary Houston does not aim to forbid commerce in any wholesome article of food or in any unofficial drug. It contemplates only that after due investigation announcement shall be made of what are found to be standard articles and that any article of a kind for which a standard has been announced but which differs from the standard shall be appropriately labeled. In short, it aims to provide a more certain rule for deciding whether an article is legitimate than the Federal law and many state laws now provide and to enable manufacturers, dealers and the public the more readily to identify articles of food and unofficial drugs.

Standardization is regarded as an important feature of profitable marketing. Many agencies of the Government and many private interests have co-operated in the work of standardizing different articles of commerce. A notable result of efforts along these lines is the Grain Grades Act, recently enacted, which provides an effective scheme for the standardization of grain under Federal supervision. While this act has not been in effect for a sufficient time to prove its worth it is expected that it will accomplish great things for the grain trade.

The delegation of power to an executive department or to a commission to establish standards for foods and unofficial drugs in my opinion has a distinct advantage over writing the standards into statutory law. It is important that standards when adopted should be flexible so as to permit of changes to meet new conditions. Standards made by an executive department or by a commission may be readily changed, but the amendment of a statute ordinarily requires much time. Changes in standards work no hardship if adequate notice be given in advance of the changes. If the legislation recommended by Secretary Houston, or legislation along similar lines be enacted into law, in my opinion, it will result in removing many of the difficulties which now stand in the way of bringing about uniformity in the enforcement of food and drug laws, and thus confer lasting benefits both on manufacturers and dealers and on the public.

January 23, 1917. W. PARKER JONES.
Washington, D. C.

In regard to Secretary Houston's recent recommendation I can best give you my attitude by referring you to a general letter I sent to such of my clients as are interested commenting upon Senate Bill No. 7840. Excerpts therefrom follow:

Senate Bill No. 7840 seeks to delegate to the National Food Officials the tremendous arbitrary power to establish standards for foods and drinks, such standards to have the effect of law and be binding upon all manufacturers of foods, drinks, flavoring extracts, and confectionery. In my opinion this is one of the most dangerous food and drink bills ever introduced in Congress and it should be promptly and vigorously opposed. These officials are seeking to have delegated wholly to themselves the power to fix standards and include or exclude from foods and drinks any ingredients they may now or hereafter, in their own technical way of reasoning, see fit to include or exclude.

Food manufacturers are not by any means agreed on the proposition that it is a good thing to have standards. But here is a bill that proposes not only to force standards and arbitrary forms of labeling on them, but also to give the National food officials the absolute power to say what those standards and that labeling shall be. The question is not whether you want standards or not—the proposition is to force standards on you whether you want them or not and also force on you standards that you may be most unalterably opposed to. If you must have standards now is the time to strike and strike hard for proper ones and for due recognition of time honored established trade standards and customs. You stand a far better chance of recognition before your legislators than you do before any of the food officials.

If we must have standards let us have at least a hearing on them before our duly elected U. S. senators and congressmen. The United States Food Officials have been working on food standards for several years at the expense of the taxpayers of the country. They should be compelled to produce these standards and let us see what they are. Food manufacturers are entitled to be heard on such an important matter as standards and definite forms of labeling, before impartial judges, and food officials certainly are not impartial judges in such matters.

January 19, 1917. Thomas E. Lannen.
Chicago, Ill.

In my opinion, legal standards for foods are advisable, necessary and inevitable. It is the part of wisdom for progressive food manufacturers to favor Federal standards for their products and to assist in their formulation. Some states already have legal food standards and other states are headed that way. It is better to have one uniform Federal standard than varying state standards. It is idle to say that the legislature may not give to an administrative board the power to fix standards. The legislature must prescribe the principles which shall govern and the details may be left to the officials designated by the Act. This is so well settled that it is not open to serious argument. The recent decision of the U. S. Supreme Court upholding the ice-cream standard was a foregone conclusion.

In my judgment, far-sighted manufacturers will be slow to respond to the public call of certain interests asking them to enlist the aid of senators and congressmen to antagonize food standards, and to impugn the action of food officials who have been endeavoring in an honest manner to ascertain and publish the composition of certain foods.

There may well be differences of opinion as to the proper method or agency for working out the standards. Personally I believe there should be a joint board composed of food officials, food chemists, food lawyers, and food manufacturers. I know that many prominent food commissioners now concede that the food manufacturing trade should be represented on any board of standards. I believe also that the principles upon which the standards are based should be definitely prescribed by Congress. This is necessary not only as a matter of law, but also of policy and protection to the manufacturers.

Of course there is not the remotest chance of the Standards Bill, known as Senate Bill No. 7840, or any similar measure, passing at this session of Congress. There remain but five weeks of this session, barely time to pass the appropriation bills, and other administration measures, so there is no occasion right now for fire alarm calls on the part of those who oppose food standards.

The next session of Congress, or even the next after that may not see the enactment of legislation providing for National food standards, but such a measure is surely coming eventually, and to my mind it is already well on the way. Some manufacturers realize this fact and they are preparing themselves and the lines of business they represent. Other manufacturers have their heads in the sand.

In August, 1915, at Berkeley, California, in an address before the Association of American Dairy, Food and Drug Officials, I said on the subject of standards:

'It is my deliberate judgment, formed as a result of nine years' experience, that standards for foods must be established before a full measure of food control can be had. The standards for drugs are fixed by the United States Pharmacopoeia and the National Formulary. What we need is a "Foodacopoeia," if I may be allowed to coin a word. I should like to see the joint committee on standards and definitions recognized by a United States statute, perhaps along the general line of the statute under which the Federal Horticultural Board now operates. It goes without saying almost that the standards must be fair, and that they should be broad enough not to be discriminatory. Several years ago I formulated my theory of the foundation upon which standards should be built. I then said, "No food deleterious to health or fraudulent in character may be sold. Any food not deleterious to health and not fraudulent in character may be sold under a properly descriptive label.'

January 23, 1917. Geo. P. McCabe.
Chicago, Illinois.

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Word from an Expert Witness.

The establishment of legal standards for foods should be of great service to the consumer and the honest manufacturer. The importance of having such standards drawn up in enforceable form is clearly recognized in the statement of Secretary Houston. Sanitarians will also note with satisfaction the assertion that factory inspection is contemplated as well as analytical work. It will be generally agreed that 'in many instances it is impossible to determine from a chemical or bacteriological examination the conditions under which a particular food or drug was produced.' This is in accord with a growing feeling that rigid chemical and bacterial standards are impracticable in many cases, and that the ends of sanitation are often better served by inspection of the conditions under which foods are produced and distributed. This does not mean that chemical and bacterial standards are inadvisable, but that they are usually to be considered in connection with other sources of information and not regarded alone as a basis for final judgment.

January 22, 1917. Edwin O. Jordon.
Department of Hygiene and Bacteriology,
University of Chicago.

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Opinions of Chemical Engineers.

We have always believed in standards for quality rather than in standards for legality for, in our experience, we know that often where goods have been of excellent quality they have not met the legal requirements, and we have many times found where goods have been up to the legal requirements they have been of inferior quality. If standards are to be made for the protection of the consumer, it seems to us the Administration should have in mind purity for quality as more essential than purity for legality. While we, of course, recognize that the machinery of the Administration in the enforcement of the Food and Drugs Act is a most complicated and costly process, nevertheless we do not feel that ironclad standards should be laid down hastily until the product, so to speak, has reached its surface level of evolutionary improvement. We, of course, recognize that milk, butter, and other natural foods of a similar nature are easily standardized when sold in their natural state, but there is a word of caution to be said even under the above accepted conditions of making standards on natural food products. The lines must not be drawn so closely as to shut the door against improvements. For example: The standard on condensed milk should not be so inflexible as to require cane sugar instead of grape sugar, which would make a better and equally wholesome product. Standards on natural products should not be so limited as to exclude variations of the genuine article. Standards today for rye flour require a nitrogen content of 1.36% in spite of the fact that many of the best ryes produce flour which contain much less than this quantity.

The board whose duty it is to establish standards should be composed of men who have broad foundations along these lines. If composed simply of chemists who have had experience along the lines of chemical analyses only and who are not acquainted with the variability of the product in question, nor with the manufacture of such products, the standards created by such a board naturally would be narrow and such rules would be detrimental not only to the manufacturer but also to the consumer.

January 18, 1917. THE COLUMBUS LABORATORIES,
Chicago, Ill. Per J. A. WESENER.

"Most food standards formulated heretofore have defined only the lowest legal grade of the product in question and have in consequence very probably inhibited rather than stimulated improvement in that overwhelming majority of food products whose high quality never brought them within range of the standard's deadlines.

"There has been one important exception to this tendency. The standards for milk which have been the subject of more intensive study and research than any other food standards are already recognizing grades and so placing a premium upon quality. The resulting improvement in the milk offered for sale under such standards is notable.

"If it is such standards as these, recognizing differences in grade within classes that the Secretary of Agriculture wishes to establish, he should have the support of all those interested in public health, but if the standards are to be established merely for the convenience of public officials engaged in the enforcement of food laws and without regard to the possible effect of such standards on the development of the food-producing industries, this subject is of little practical interest to the apostles of public health or the public at large and becomes merely a contest between manufacturers and officials.

"CARL S. MINER."

January 23, 1917.
Chicago, Ill.

* * *

National Confectioners' Association Of the United States.

The question of food standards is by far the most important with which manufacturers of food products will have to contend.

If I understand Secretary Houston's recommendation, it is to the effect that the National food officials would be given authority to establish standards for all food products, which standards would have the same effect as if they had been established by law.

I am opposed to the recommendation for the reason that in my opinion, if the food standards are to have the same effect as law, then by all means they should be established by Congress, after the food manufacturers had been given an opportunity to be heard on the subject.

In other words, any standards which are promulgated should be duly enacted into law only after a very thorough and complete investigation has been made by the proper Congressional committee, as to what those standards should be in all fairness to food manufacturers.

January 22, 1917. WALTER C. HUGHES,
Chicago, Illinois. *Secretary.*

National Wholesale Grocers' Association of the United States.

The constant aim of this Association since its organization has been to secure uniformity in the food requirements of the forty-eight states and of Congress. It was realized at the outset that in order to secure such uniformity the statutes should be confined, as far as possible, to general regulations and that the detailed food standards should never be incorporated in the statutes but should be established from time to time by properly authorized commissions. The Association's contention was based on the fact that standards are necessarily the result of scientific study and subject to change and alteration as the science of food production improves and new ingredients and new methods are discovered. If standards were enacted in the statutes they could be changed from time to time only by the cumbersome and uncertain method of amending the law by the legislature, and in view of this fact it would be utterly impossible to secure any degree of uniformity or agreement in the standards fixed by the statutes of the forty-eight state legislatures and of Congress and pertaining to numberless food products.

Food standards should be initially framed by a National commission established by virtue of an amendment of the Food and Drugs Act of June 30, 1906. The membership of this commission should include representatives of state food officials, food chemists, experienced legal officers and the important interests in the trade itself.

State food officials should be granted the full power under the state statute to adopt and to enforce food standards in harmony with the United States standards. The standards so adopted and enforced by the state food officials could be made prima facie evidence in all cases prosecuted thereunder, and the enforcing officers would, therefore, have in their hands practically the same efficient means of enforcement that they would derive from the enactment of standards in the statutes themselves. ALFRED H. BECKMANN,
January 23, 1917. *Secretary.*

Trade Associations.

American Specialty Manufacturers' Association.

Referring to Secretary Houston's recent recommendation relating to legal standards for foods, I have to advise you that I am in favor of the establishment of food standards for the enforcement of the Federal Food and Drugs Act, provided such standards are arrived at through the medium of a responsible and capable special standards commission, *upon which the food trade shall be represented.* The field for such standards is necessarily restricted, and no restriction should be placed upon the manufacture of proprietary articles. Foods not conforming to the official standard should be permittted to be sold, provided they are sold under their own and declared standard.

January 24, 1917. WM. L. SWEET,
New York, N. Y. *President.*

Sealing Tin Containers For Export to the Tropics.

In shipping to the Tropics the wise practice of using tin containers for dried fruits, candies, crackers, etc., has been generally adopted by American manufacturers and exporters, but many firms so solder the cover that its removal means the practical destruction of the container. Because of their usefulness as receptacles in which to store articles to protect them from ants and other vermin these containers are much in demand if so sealed that they may be opened without destroying them. This is done by competitors from other countries and by some American exporting firms. By lightly soldering around the edge of the lid a narrow piece of tin that can be stripped off the same security is obtained and the prospective value of the container is preserved.—*Commerce Reports.*

Sanitary Measures Held Valid.

Sanitarians will be glad to know that there was recently decided in the New York Supreme Court a case establishing the right of a city to enforce reasonable conditions of sale in the case of food. The syllabus of Justice Rodenbeck's decision as published in the Bulletin of the New York City Department of Health, Vol. 5, No. 52, contains the following significant paragraph:

"The requirement of a blood test as a condition for a license to sell milk in the city (Rochester) is a reasonable condition, since it imposes no serious inconvenience upon the applicant, and it is a matter of common belief that typhoid is a contagious disease, and that such a test will reveal whether or not the person whose blood is examined has had typhoid and is a carrier of typhoid, and the transmission of this disease may thus be avoided by suitable precautions."

National Canners Association and Allied Industries

Tenth Annual Convention, Cleveland, Ohio, February 5-10, 1917

THE convention opens on Monday, February 5th, and will not close until the evening of February 10th. There will be general sessions of the convention, or special meetings of the sections on each of these days, and the week presents an unusual opportunity to develop and encourage better methods and higher ideals, all of which will redound to the good of the canning industry, which is one of the great factors of this country and is yearly increasing in value and importance.

Every canner, every machinery and supply man, and every broker should set apart this one week for the betterment of the entire industry. The combined effort will result in an individual good far beyond any outlay either in time or other expense.

The headquarters hotel will be the Statler. The Secretary will begin registration at the Statler on the Sunday preceding the convention, and continue registering there until Tuesday at noon, when the registration desk will be moved to the Coliseum. Arrangements will be made for registering at the Statler at times when the exhibit is not open at the Coliseum.

PROGRAM.

Monday Morning, Feb. 5th.

Machinery Hall Open All Day.

10:30 o'clock—Meeting of the Board of Directors, Hotel Statler, Lattice Room.

Monday Afternoon.

2:00 o'clock—Opening session—Hotel Statler Ball Room, Mezzanine Floor.

Charles A. Otis, President Cleveland Chamber of Commerce, presiding.

Vocal and Instrumental music—"Star Spangled Banner"

Invocation—Rev. A. B. Meldrum, D. D., Pastor Old Stone Church, Cleveland.

Cleveland Greetings—His Honor, Mayor Harry L. Davis.

Response—Henry Burden, First Vice President, National Canners' Association.

Addresses—

Dr. Carl L. Alsberg, Chief of Bureau of Chemistry, Washington, D. C.

James H. McLaurin, President Southern Wholesale Grocers' Association.

Senator Theodore E. Burton, Cleveland.

Addresses of Presidents—

Richard Dickinson, President National Canners' Association.

A. F. W. St. John, President Canning Machinery & Supplies Association.

Frank A. Alpin, President Canned Foods and Dried Food Brokers' Association.

Announcement of Committee on nominations and other convention and special committees.

The recommendations of the President of the National Canners' Association will be furnished in printed form, together with the report of the Secretary and Treasurer.

Monday Evening.

7:00 o'clock—Orchestral and vocal music.

Cleveland in film, showing in a comprehensive manner its many industrial centers and views.

Address—Hon. Bert M. Fernald, U. S. Senator from Maine, and former President of the National Canners' Association.

Address—Theodore F. Whitmarsh, President National Wholesale Grocers' Association.

Address—Dr. Wm. Frear, Committee on Definition and Standards National and State Food Officials.

Address—Dr. H. E. Barnard, State Food and Drug Commissioner, Indianapolis, Ind.

Address—Dr. E. E. Pratt, Chief Bureau of Foreign and Domestic Commerce, Washington, D. C.

Report of the Committee on Nomination and Election of Officers National Canners' Association.

Tuesday Morning.

Machinery Hall Opens at 1:00 P. M.

9:00 o'clock—Tomato Section, Ballroom, Hotel Statler, Mezzanine floor. F. A. Torsch, Chairman, presiding.

Association Work—H. P. Strasbaugh, Aberdeen, Md., Secretary Maryland Canners' Association.

Cost Accounting—Chas. G. Summers, Jr., President Canned Goods Exchange of Baltimore.

No Footsteps Backward—Hugh S. Orem, Baltimore.

Standardization—Ralph Polk, Greenwood, Ind.

Distribution—Walter J. Sears, Chillicothe, Ohio.

These addresses to be followed by general discussion.

Election of officers and committees for the ensuing year.

10:00 o'clock—Fruit Section, South Foyer of Ballroom, Mezzanine floor, Hotel Statler, George A. Burnham, Chairman, presiding.

"Canned Fruits, Yesterday, Today and Tomorrow"—George W. Cobb, American Can Co.

"Standardization and Grading"—Charles H. Bentley, San Francisco, Cal.

"Shrinkage and Evaporation in Fruit Canning"—Dr. A. W. Bitting, Research Laboratories National Canners' Association, Washington, D. C.

"What Cost Accounting Means to the Canner"—William Kittelberger, Webster, N. Y.

First Meeting exclusively for the Women of the Convention.

10:00 o'clock—Hollenden Hotel Ballroom, Mezzanine Floor. Walter J. Sears, Temporary Chairman.

Address of Welcome—Genevieve B. Cline of Ohio Federated Women's Clubs.

Address—"The Canner and the Can"—Marie D. Peffer, late Food Editor Milwaukee Journal.

Address—Anne McGregor Payne, Editor Home Economics Dept. Ohio State Journal.

Address—Dr. Geo. C. Ruhland, Health Officer of Milwaukee, Wisconsin.

Address—Adelaide L. Van Duzer, Supervisor Domestic Science, Cleveland Public Schools.

Organization of "Home Economics Section" with election of Officers.

Orchestral Music.

Immediately following, the ladies will be guests at Luncheon in Assembly Hall, Hollenden Hotel.

Tuesday Afternoon.

Visit—National and State Food Officials—Exhibition Hall.

2:30 o'clock—Lattice Room, Hotel Statler. Meeting of Presidents, Secretaries and other Officials, State Associations.

Wednesday Morning.

Machinery Hall Opens at 1:00 P. M.

8:30 o'clock—Pea Section. Ballroom Hotel Statler, Mezzanine floor, H. C. Hemingway, Chairman, Presiding.

8:30 to 9:00 o'clock—Moving Pictures—15 minutes.

Explanation of Advertising Proposition—15 minutes.

9:00 o'clock—Chairman's Report of year and Recommendations for further work.

Cost Accounting Committee—Frank Gerber.

Crop Hazard—W. H. Fromm.

Standardization—Dr. William Frear.

Election of Officers.

10:00 o'clock—Hollenden Hotel Ballroom, Mezzanine Floor. For the Women of the Industry and the Women of Cleveland.

Address of Welcome—Mrs. J. M. Fleming, President of Federation of Woman's Clubs of Cleveland.

Address—"Some Problems in the Selection of Foods"—Dean Edna N. White, Ohio State University.
Address—Dr. R. H. Bishop, Health Officer of Cleveland.
Address—"Efficiency in Home Making"—Miss Alice Getchel Kirk, Food Expert.
Orchestral Music.
11:00 o'clock—Wax and Refugee Bean Section, North Foyer of Ballroom, Hotel Statler. D. C. Pierce, Chairman, presiding.
"Growth and Disease of Beans," Prof. M. F. Barris, Cornell University.
"Cost Accounting as Applied to Wax and Refugee Beans," Charles H. Hunt, Cherry Creek, N. Y.
General Discussion.
10:00 o'clock—Election of Officers Canning Machinery and Supplies' Association, South Foyer, Ballroom, Mezzanine Floor.

Wednesday Afternoon.

Special Ladies' Theater Party (See special Coupon Books for particulars.)
2:30 o'clock—Hotel Statler, Lattice Room, meeting of National and State Food Officials.

Milk Section.

Wednesday, February 7, 1917.

6:30 P. M.—Get together meeting, Hollenden Hotel.
Random Remarks—Charles T. Lee.

Thursday Morning.
Machinery Hall Opens at 1:00 P. M.

9:00 o'clock—Corn Section, Ballroom, Hotel Statler, Mezzanine Floor. J. W. McCall, Chairman, presiding.
Chairman's Address.
Reading of the Minutes of the last Meeting by Secretary.
Appointment of Nomination Committee.
Address—"Standardization of Corn"—Dr. W. D. Bigelow, Research Laboratories National Canners' Association, Washington, D. C.
Followed by 15 minutes' discussion.
Address—"Cost of Packing Corn"—Clarence H. Sears, Chillicothe, Ohio.
Followed by 15 minutes' discussion.
Address—"Efficient Factory Management and Its Relation to the Cost of Packing"—F. H. Stare, Columbus, Wis.
Followed by 15 minutes' discussion.
Election of Officers.
Adjournment.
10:00 o'clock—Kraut Section, South Foyer, Ballroom, Hotel Statler, Mezzanine Floor. A. E. Slessman, Chairman, presiding.

Kraut Section.
National Kraut Packers' Association.

Talk on General Conditions—President L. S. Foster.
Address on Cabbage Diseases and Their Control. Illustrated by Stereopticon Pictures—Prof. R. E. Vaughan, Asst. Professor of Plant Pathology, University of Wisconsin.
Address—Dr. L. A. Rounds, Bureau of Chemistry, U. S. Department of Agriculture.
Paper on Costs of Both Bulk and Canned Kraut—W. W. Wilder, Clyde, Ohio.
10:00 o'clock—Milk Section, Assembly Room, Hollendon Hotel, John F. Montgomery, Chairman, presiding.
Address—Dr. W. D. Bigelow.
General Exporting—D. L. Sterling.
Controlling the Chemical and Physical Properties of Evaporated Milk—Timothy Mojonnier.
Symposium on Co-operative Advertising—Led by J. B. Cook.

For the Women.

9:30 o'clock—Lobby of Hotel Statler.
Personally conducted trip to Cleveland Museum of Art.
2:00 o'clock—Lobby Hotel Statler.
Personally conducted sight-seeing trips through
The Telling Belle-Vernon Company.
The Sterling & Welch Company.
The Halle Bros. Company.

Miss C. E. Buckhold, 859 Leader-News Bldg., Bell Tel. Main 4998, has been engaged for Tuesday, Wednesday and Thursday to be of all service possible to the women of the Convention.

Theatre Party.

Keith's Hippodrome—Thursday Evening, February 8th

Tendered by

American Can Company.

Dancing on the stage immediately following program.

Hippodrome Orchestra.

Friday Morning.
Machinery Hall Open All Day.

9:00 o'clock—Ball Room Hotel Statler, Mezzanine Floor.
General Session. Subject, "Principles of Cost Accounting."
Address by Lansing B. Warner, Inter Insurance.

Report of Committees.

Conference with Wholesale Grocers' Association—Frank Gerber, chairman.
Scientific Research—Henry Burden, chairman.
Adjustment and Information—E. V. Stockham, chairman.
Resolutions—S. F. Haserot, chairman.
Foreign Trade—Charles H. Bentley, chairman.
Finance—George N. Numsen, chairman.

Report of Sections.

Tomato—F. A. Torsch, chairman.
Peas—H. C. Hemingway, chairman.
Corn—J. W. McCall, chairman.
Milk—J. F. Montgomery, chairman.
Fruit—G. A. Burnham, chairman.
Wax and Refugee Beans—D. C. Pierce, chairman.
Kraut—A. E. Slessman, chairman.

Report of All Convention Committees.

Announcement of permanent committees.

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PROGRAM.

The Fourteenth Annual Meeting of the National Canned Foods and Dried Fruit Brokers' Association.
Lattice Room, Hotel Statler.

Monday, February 5th, 2 P. M. and 7:30 P. M.

Joint Meeting with National Canners' Association and Canning Machinery and Supplies Association, Ball Room, Hotel Statler.

Tuesday, February 6th, 10 A. M.

Roll Call.
Reading of Minutes of Previous Meeting.
Report of President.
Address—Mr. Richard Dickinson, President, National Canners' Association.
Address—Hon. Bert M. Fernald, U. S. Senator, Maine.
Address—Mr. A. F. W. St. John, President, Canning Machinery and Supplies Association.
Address—H. C. Van Horn, Chairman Arbitration Committee of Southern Wholesale Grocers' Association.
Report of Secreary.
Report of Treasurer.
Appointment of Committee on Nominations and Committee on Resolutions.

Tuesday Evening, February 6th.

Banquet of National Canned Foods and Dried Fruit Brokers' Association, Assembly Hall, Hollenden Hotel.

Wednesday, February 7th, 10 A. M.

Lattice Room, Hotel Statler.

Report of Executive Committee.
Report of Standing Committees.
New Business:—
- Uniform contracts to cover selling arrangements between Broker and Packer.
- Increased rates of brokerage.
- Brokerage on future contracts where short deliveries are made.
- Amount of invoice on which brokerage should be figured.

Report of Committee on Resolutions.
Report of Committee on Nominations.
Election of Officers.
Adjournment.

The Food Manufacturer and the Law

By Thomas E. Lannen and Thomas J. Hickey
of the Chicago Bar

THE situation that existed in the United States with regard to state food laws prior to the enactment of the national food law, can best be revealed, perhaps, by a study of the records of the association which was then known as the National Association of State Dairy and Food Departments. This association held its first convention in 1897, and in the early days of its existence was, as its name clearly implies, a national association of state dairy and food officials. There were, in those days, no national food officials in the organization; and, while the organization early in its history began to agitate the subject of a national food law, its work was confined mainly to the problems confronting the various state food officials in the enforcement of the then existing state food laws. For the purpose of brevity we will include within the meaning of the "food laws" the dairy laws as well.

The writer became acquainted with the work of that association in 1901, and for some years was closely associated with its work and has kept in close touch with it ever since. The story of how certain national food officials gradually worked their way into that organization and at times were able to exert such influence among the ranks of its members as to stir up some of the bitterest fights that have ever taken place in the association, create differences of opinion, and raise issues that even yet have not been entirely settled, would be most interesting. But such a topic is not germane to the subject matter of this particular chapter of these series of articles.

The fifth annual convention of that association was held in Buffalo, N. Y., in 1901, and the proceedings of that convention were published in 1902. It was decided by the publisher of those proceedings, Mr. Herman B. Meyers, to collect and publish, as a part of those proceedings, an epitome of the state food laws on the statute books at that time (1901). The writer was engaged to do that work. There had been no compilation of the state food laws up to that time, although later a very complete compilation of all of the state food laws, giving them verbatim, was compiled under the direction of Dr. W. D. Bigelow, then with the United States Bureau of Chemistry. The following year the proceedings of the convention contained not only all of the state food laws epitomized, but also showed in an epitomized form the decisions of the various state courts on the food laws. The compilation shows the following with regard to the status of the state food laws:

Alabama had but few food laws and no department charged with the enforcement of such as there were, except that it was made the duty of the Commissioner of Agriculture to enforce certain laws relating to substitutes for butter. Such laws as were on the books were found in the code of 1896 and related generally to unwholesome fish or meat, bakery goods, sugar, syrup, molasses, lard, butter, restaurant keepers, substitutes for butter, etc.

Alaska had no food department and apparently no department charged with the enforcement of the few laws that there were relating to foods and drinks. The laws were found in the Penal Code relating to offenses against public health and dealt largely with adulterated foods and drinks, the only provision relating to misbranding simply making it an offense to use a brand, label, stamp or trade mark in such manner as to deceive any one, which, after all, is about all that is needed on the subject of misbranding.

Arizona had no food department, and apparently no official specifically charged with enforcing the laws, and the laws were very few. They related principally to adulterated and unwholesome food; but they did contain specific provisions relating to the sale of oleomargarine.

Arkansas had but few food laws and they related to unwholesome meat, fish, vegetables, adulterated butter, etc. There appears to have been no official charged with the enforcement of those laws, but the Governor had the power to appoint an inspector of wine.

California had a very good food law relating to foods and drinks and also included drugs, but apparently no department specifically charged with the enforcement of the same, except a bureau to enforce the dairy laws. It is interesting to note that the definitions of adulteration in that law at that time are almost identical with the definitions of adulteration contained at the present time in the National Food Law, but there seems to have been no general definition of misbranding such as appears in the national law at the present time. The U. S. Pharmacopoeia was made the standard for drugs.

Colorado had a set of dairy laws and a state dairy commissioner and a deputy state dairy commissioner to enforce them, but no general food laws except a few special laws.

Connecticut had a very complete dairy and food law and a dairy commissioner and deputy commissioner to enforce them. The definitions of adulteration followed closely the provisions of the national food law existing at the present time.

Delaware had quite a number of food laws, but no food department charged with the enforcement of the same except that the Governor had the power to appoint inspectors of breadstuffs. The laws dealt largely with specific articles such as oleomargarine, breadstuffs, etc., and fruit, and there does not appear to have been any general definitions of adulteration or misbranding of food.

Florida had but few food laws and no department specifically charged with enforcing them. Such laws as there were related to unwholesome food and adulterations of liquor, adulterated drugs, false packing of cotton, sugar, rice or pork, and required specific labeling of the weight on packages of flour, meal, oats, grits, wheat, rye, peanuts and beans.

Georgia had but few food laws and no department specifically charged with enforcing them, except that the Agricultural Department had in a general way power to enforce the laws. The laws were not of a general nature, but specific, relating principally to dairy products.

Idaho had but very few food laws and they were directed largely at specific articles. It had no food department charged with enforcing the food laws. The laws were aimed at the adulteration of food rather than at misbranding. There were no general definitions of adulteration contained in the laws. There were specific laws aimed at vinegar and oleomargarine, etc.

Illinois had a very complete food law and a State Food Department to enforce the same. The definition of adulterated food was very much the same as that contained in the national food law at the present time, but there was no general definition of misbranding. There were specific laws on various food products. Some of the laws had been in effect since before 1845.

Indiana had a good set of food laws which were enforced by the State Board of Health. The general definitions of adulteration followed closely the general definition of adulteration contained in the national food law at the present time, but it does not appear that there was any general definition of misbranding. It had among other things specific laws on unwholesome food. In addition the State Board of Health had published rules which the courts upheld relating to milk, butter, oleomargarine, cheese and many other food products.

Indian Territory had no law whatever on the subject of adulteration of articles of food, drink and drugs.

Iowa had a very complete food law, but it related principally to dairy products. It had a dairy commission to enforce the same. It does not appear that it had any general definition of adulteration or misbranding of food such as contained in the national law at the present time.

Kansas did not have many food laws, but did have a general definition of adulteration of food very much the same as that contained in the national food law at the present time, but apparently no general definition of misbranding. No department was specifically charged with the enforcement of such laws as there were.

Kentucky had a general food law which contained general definitions of adulteration, much the same as contained in the national food law at the present time, and a general definition of misbranding, but different from the present national law. These laws were enforced by the Agricultural Experiment Station of the State College of Kentucky.

Louisiana had a few food laws, but the State Board of Health was charged with the duty of protecting the public in the sale of foods and drugs and given wide powers in that respect. The U. S. Pharmacopœia was recognized as the standard for drugs. The laws did not contain any general definition of adulteration or misbranding such as found in the national food law at the present time.

Maine had no general definition of adulteration or misbranding in its laws, but had several laws relating specifically to certain articles of food, such as oleomargarine, molasses, vinegar, lard, flour and meal, candy, maple sugar and syrup, eggs and milk. The laws were left to be enforced by local boards of health and no department was specifically charged with the enforcement of these laws.

Maryland had quite a few special food laws, but no definition of adulteration or misbranding such as contained in the national law. The laws, such as they were, were enforced by the Board of Health of Maryland.

Massachusetts had very complete dairy and food laws. The dairy laws were administered by the Dairy Bureau of the Board of Agriculture, and the food laws were administered by the State Board of Health. The dairy laws covered practically the whole dairy field, being specific in their nature. The food laws, proper, consisted largely of general definitions of adulteration much the same as those contained in the national law at the present time, but there does not appear to have been any general definition of misbranding.

Michigan had many food laws, but they were largely specific in character. In addition the law contained a general definition of adulteration much the same as the national provision, but there does not appear to have been any general definition of misbranding similar to the national provision. The laws were enforced by a state dairy and food department.

Minnesota had a very complete food law administered by a state dairy and food commission. But the laws were largely specific in character; that is, relating to certain articles, and in addition there was a general definition of adulteration much the same as contained in the national food law, but it related only to "food jelly." There does not appear to have been any general definition of adulteration or misbranding applicable to all foods such as the national provisions.

Mississippi had no department charged with the enforcement of the food laws, but had a general definition of adulterated food much the same as that contained in the national food law. In addition there were a few specific laws, but no general definition of misbranding.

Missouri had no department specifically charged with the enforcement of food laws, with the exception that the Board of Agriculture enforced the dairy laws. Such laws as there were related largely to specific products and there does not appear to have been any general definitions of adulteration or misbranding similar to the national law on the statutes of Missouri at that time.

Montana had no department specifically charged with the enforcement of its dairy and food laws, with the exception that meat and milk inspectors were provided for cities having 5,000 inhabitants or more. Such laws as there were related largely to dairy products. There does not appear to have been any general definitions of adulteration or misbranding similar to the national provisions.

Nebraska had a fairly complete set of food laws, and it was the duty of the Governor to enforce them. He was made the Food Commissioner by law. The laws related specifically to many food products, but the laws themselves contained no general definition of adulteration or misbranding. However, the Governor by a proclamation adopted definitions of adulteration very similar to the definitions of adulteration now contained in the national food law.

Nevada had no department specifically charged with the enforcement of its food laws, and had but very few laws on the subject. They related generally to unwholesome foods and drinks and adulterated milk and oleomargarine. There were no general definitions of adulteration or misbranding on the statute books similar to those contained in the national food law at the present time.

New Hampshire had several laws dealing specifically with certain food products, and adopted the U. S. P. as the standard for drugs, but had no general definitions of adulteration or misbranding such as contained in the national food law. The State Board of Health was given a small appropriation to enforce some of these laws.

New Jersey had several food laws specific in character, relating mainly to dairy products and oleomargarine, and in addition adopted the U. S. P. as the standard for drugs and general definitions of adulteration similar to the provisions of the national food law, but apparently no general definitions of misbranding. A peculiarity of the New Jersey law was its provisions relating specifically to the sale of horse flesh and regulating the sale thereof by local boards of health. The general dairy and food laws of the state were enforced by the board of health.

New Mexico had but few food laws, but what there were were general in nature, and aimed at adulteration of food rather than misbranding.

New York had a splendid set of dairy and food laws. The dairy laws were enforced by the Department of Agriculture and the general food laws by the State Board of Health. The laws contained a number of special laws relating to special products, and also contained general definitions of adulteration of foods and drugs very similar to those contained at the present time in the national food law, but no general definitions of misbranding.

North Carolina had a very complete food law very general in its nature, which was enforced by the Board of Agriculture. The law contained general definitions of adulteration following closely the lines of the provisions of the national food law on the same subject, and the definition of misbranding following somewhat the lines of the present national provision. It had but few special laws relating to special products.

North Dakota had laws applying only to dairy products and they were enforced by a dairy and food commissioner. In 1901 a law was passed dealing generally with adulteration and misbranding of foods.

Ohio had a very complete set of food laws, enforced by a dairy and food commission. There were numerous specific laws relating to certain articles, as well as general definitions of adulteration similar to the provisions of the national law, but apparently no similar definitions of misbranding.

Oklahoma had no food department. Such laws as there were related only to the adulteration of food and there were no general definitions of misbranding.

Oregon had several special laws relating specifically to certain articles of food, and in addition had general definitions of adulteration somewhat similar to the like provisions in the national law, but apparently no general definition of misbranding similar to the national provision.

Pennsylvania had a general food law and several special laws relating to specific products. In addition it had a Dairy and Food Division in the Department of Agriculture to enforce these laws. It had general definitions of adulteration similar to the provisions contained in the national food law at the present time, but no similar general definition of misbranding.

Rhode Island's food laws were a part of the public health laws. They were largely specific, that is, relating to specific articles and contained no general definitions of adulteration or misbranding similar to the national law at the present time.

South Carolina had no department specifically charged with enforcing its food laws, but the Board of Health had supervisory powers over such laws. The State had few special laws on food, but had a very good general food law defining adulteration in a general way very much the same as defined in the national law, at the present time. It does not appear that it had, however, any general definitions of misbranding similar to the national provisions.

South Dakota had numerous special laws relating specifically to certain food products, but no general definitions of misbranding or adulteration, similar to the national law. It had a Dairy and Food Commissioner to enforce these laws.

Tennessee had a very general food law, enforced under the supervision of the State Board of Health. The law contained definitions of adulteration very similar to those contained in the national food law, and also a definition of misbranding. The food law in force in that state appears to be the most general food law in force at that time, as it dealt in a general way with misbranding and adulterations and could be enforced against all food products.

Texas had but few food laws and such as there were were enforced by the state health officer. The law contained general definitions of adulteration similar to the provisions in the national food law. No general definitions of misbranding. The U. S. P. was made the standard for drugs.

Utah had a set of laws and a State Dairy and Food Commission, but the laws dealt mostly with dairy products, except a few provisions that dealt specifically with certain articles of food. There were no general definitions of adulteration or misbranding such as now contained in the national food law.

Vermont had but few food laws and for the most part they related either to dairy products or to specific articles of food, there being no general definitions of adulteration or misbranding such as contained in the national law. There was no special department charged with the enforcement of these laws.

Virginia: The State Board of Agriculture supervised the enforcement of such food laws as there were, and these laws were made up of dairy laws and special laws relating to special articles of food. But in addition there was a special definition of misbranding; and definitions of adulteration similar to the definitions of adulteration now contained in the national food law. The Virginia law also authorized the Board of Agriculture to fix standards, but provided that when standards had been fixed by the Secretary of Agriculture of the United States they should be accepted by the Board of Agriculture of Virginia.

Washington had a Dairy and Food Commission and a very satisfactory general food law, which included a general definition of misbranding and definitions of adulteration very similar to those now contained in the national food law.

West Virginia had no department charged with the enforcement of its laws, and had few laws on the subject of food or drink, and these dealt only with the question of adulteration.

Wisconsin had a Dairy and Food Commissioner charged with the enforcement of its dairy and food laws, and quite a comprehensive set of laws. The definitions of adulteration followed closely the provisions of the present national food law, but there were no general definitions of misbranding similar to those contained in the national food law. There were several special laws relating to certain articles of food.

Wyoming had no food department or any department charged with the enforcement of its laws and the laws relating to foods were very few. There was no general definition of adulteration in those laws similar to the national law and no general definition of misbranding.

We feel that a recitation of too much of the details of this old legislation would not only be wearisome to the reader, but would serve no good purpose in this series of articles. But there are some cardinal points and general deductions that can be drawn from a careful study of those laws which may be of general interest to the reader. We wish to say, in the first place, that the period from which we have selected these laws was chosen for two reasons: First, because we know that the laws of that period were carefully compiled in the manner we have already referred to, at the time referred to, and that that compilation is reasonably accurate; secondly, because the period was one in which thought among the food officials of the country with regard to food legislation had begun to thoroughly awaken. In other words, it represents a period midway between the time when there were practically no food laws in the United States and the present (with the exception of some of the pioneer states in food law legislation like Massachusetts, Pennsylvania, Ohio and Illinois).

The general deductions that may be drawn from this legislation are as follows:

First: That the paramount idea was to prevent the sale of unwholesome and adulterated food; and by "adulterated" we mean food that was deemed to be injurious to health, or unfit for food.

Second: The tendency seems to have been to deal with special products by special legislation, the tendency of each state being to deal specially with specific products in which its people were most interested, dairy products and substitutes being given the most attention.

Third: Little attention seems to have been given to the question of misbranding as compared with the question of adulteration. Many of the food laws had no general definition of misbranding at all and with respect to those that did have such a definition the provisions were very much narrower than those at the present time. Typical of such general provisions as were attempted would be, for illustration, the law of Washington, which provided as follows:

"The term 'misbranded' as used herein includes all articles of food or articles used in the composition of food or condiments, the packages or labels of which shall bear any statement purporting to name any ingredient or substance not contained in such article, which statement shall be false in any particular; or any statement purporting to name the substance of which said article is made, which statement shall not in full give the names of all the substances contained in the article in any measurable quantity or which names as a single article of food any mixture or compound."

Such provisions as this were not at all as general as the general provision of the national food law with regard to misbranding, which among other things provides that an article of food shall be deemed to be misbranded:

"The package or label of which shall bear any statement, design or device regarding such article or the ingredients or substances contained therein, which shall be false or misleading in any particular," or "If it be an imitation of or offered for sale under the distinctive name of another article," or "If it be labeled or misbranded so as to deceive or mislead the purchaser," or "If the package containing it or its label shall bear any statement, design or device regarding the ingredients or substances contained therein, which statement, design or device shall be false or misleading in any particular."

Fourth: So far as standards are concerned, the general tendency was to deal with dairy products, although some of the food departments endeavored by rules and regulations to establish standards for practically all products, and in this endeavor the state of Pennsylvania probably took the lead. A survey of the standards then promulgated by the Food Department of that state reminds one very much of the U. S. standards that were later promulgated; and no doubt this fact can easily be accounted for when it is remembered that one of the chemists of the Pennsylvania Food Department at that time was on the committee that afterwards established the standards contained in Circular No. 19 of the U. S. Department of Agriculture.

There was a general tendency to prohibit adulteration of liquor, but instead of being along the lines of standardizing the product it dealt with the addition of foreign ingredients, such as cocculus indicus, vitriol, grains of Paradise, opium, alum, capsicum, copperas, laurel water, logwood, Brazil wood, cochineal and sugar of lead. Apparently the difference, if any, between "bottled in bond" and blended whiskey, had not even been thought of.

There were special laws in some of the states dealing specially with the following products: Milk, cream, butter, cheese, process butter, oleomargarine, condensed milk, vinegar, preservatives, candies, baking powder, extracts, jellies and jams, liquors, glucose, molasses, flour, spices, chocolate, cocoa, maple sugar, maple syrup, cream of tartar, honey, wine, canned goods, corn meal, bread, flour, saccharin, coal tar dyes, peas, condiments and coffee.

Net contents were required to be stated on a few special articles in a very few of the states.

Perhaps the best illustration of what the food officials of that time considered to be a model food law is to be found in the bill which they memorialized as a national food law at their sixth annual convention in 1903, and which was as follows:

MEMORIAL.

Presented by the National Association of State Dairy and Food Departments.

A NATIONAL FOOD LAW.

AN ACT

For the Establishment of a Food Bureau in the Department of Agriculture, and for Preventing the Adulteration and Misbranding of Foods in the District of Columbia and the Territories, and for Regulating Interstate Commerce Therein, and for Other Purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled: That for the purpose of protecting the commerce in food products between the several States and in the District of Columbia and the Territories of the United States, and with foreign countries, there is hereby created within the Department of Agriculture a Food Bureau, the head of which shall be known as the Food Commissioner, who shall be appointed by the President, and shall receive for his services an annual salary of five thousand dollars. His term of office shall be for four years and until his successor is appointed and has qualified. The Food Commissioner shall, with the approval of the Secretary of Agriculture, appoint a chief chemist, who shall receive for his services an annual salary of three thousand six hundred dollars. The Food Commissioner, under the direction of the Secretary of Agriculture, shall prescribe all rules and regulations of the Food Bureau, and shall analyze, or cause to be analyzed or examined, microscopically or otherwise, samples of food offered for sale in any State or Territory other than where manufactured, or from a foreign country. The Food Commissioner, with the approval of the Secretary of Agriculture, is hereby authorized to employ such chemists, experts, inspectors, clerks, laborers, and other employes as may be necessary to carry out the provisions of this act, and make such publication of the results of examinations and analyses as he may deem proper, as hereinafter provided in section three of this act.

Sec. 2. That the introduction into any State or Territory or the District of Columbia from any other State or Territory or the District of Columbia or foreign country, of any article of food which is adulterated or mis-branded within the meaning of this act is hereby prohibited, and any person, partnership or corporation, and the agent and representative of any person, partnership or corporation, who shall ship or deliver for shipment—common carriers excepted—from any state or territory, or the District of Columbia, or foreign country to any other state or territory or the District of Columbia, or to a foreign country, or who shall receive in any state or territory, or the District of Columbia, from any other state or territory or the District of Columbia or foreign country—common carriers excepted—or who, having received, shall deliver for pay, or otherwise, or offer to deliver to any other person any such article so adulterated or mis-branded within the meaning of this act, or any person, partnership or corporation and the agent and representative of any person, partnership or corporation, who shall sell or offer for sale in the District of Columbia or the territories of the United States, such adulterated or mis-branded foods, shall be guilty of a misdemeanor, and for such offense shall be fined not exceeding two hundred dollars for the first offense, and for each subsequent offense not exceeding three hundred dollars, or be imprisoned not exceeding one year, or both, in the discretion of the court.

Sec. 3. That the Food Commissioner shall make or cause to be made examinations of specimens of foods offered for sale in any state or territory other than that in which they shall have been respectively manufactured or produced, or from any foreign country, or intended for shipment to any foreign country, which may be collected from time to time under rules and regulations to be prescribed by the Food Commissioner, and publish in bulletins the results of such analyses. If it shall appear from such examinations that any of the privisions of this act have been violated, the Food Commissioner shall at once certify the facts to the proper United States district attorney, with a copy of the results of the analyses, duly authenticated by the analyst, under oath.

Sec. 4. That it shall be the duty of every district attorney, to whom the Food Commissioner shall report any violation of this act, to cause proceedings to be commenced and prosecuted, in the name of the United States, without delay, for the fines and penalties in such case provided, which fines and penalties shall be disposed of in the same way as the moneys received under Section 11 of this act.

Sec. 5. That the term "food," as used in this act, shall include all articles used for food, confectionery, flavoring, drink, or condiment by man, whether simple, mixed, or compound. The term "mis-branded," as used herein, shall apply to all articles of food or articles which enter into the composition of food, the package or label of which shall bear any statement regarding the ingredients or substance contained in such article, which statement shall be false or misleading in any particular; or any statement purporting to name the substances of which said article is made, which statement shall not fully give the names of all the substances contained in measurable quantities in such article, or which shall be false as to the state, territory, or country in which the article is manufactured or produced.

Sec. 6. That for the purposes of this act, an article shall be deemed adulterated, in the case of food or drink:

First. If any substance or substances has or have been mixed with it, so as to reduce or lower or injuriously affect its quality, strength and purity.

Second. If any substance or substances has or have been substituted wholly or in part for it.

Third. If any valuable constituent or ingredient of the article has been wholly or in part abstracted.

Fourth. If it be an imitation of, or sold under the name of, any other article.

Fifth. If it be mixed, colored, coated, powdered, polished, or stained in a manner whereby damage or inferiority is concealed, or if by any means it is made to appear better or of greater value than it really is.

Sixth. If it contain any poisonous ingredient, or any ingredient which may render such article injurious to health.

Seventh. If it be labeled or branded so as to deceive or mislead, or tend to deceive or mislead, the purchaser.

Eighth. If it consist of the whole or part of a diseased, filthy or decomposed animal or vegetable substance, or any portion of an animal unfit for food—whether manufactured or not—or if it is the product of a diseased animal, or of an animal that has died otherwise than by slaughter; provided, that articles of food which shall be labeled, branded, or tagged, as prescribed by the Food Commissioner, showing their exact character, and which do not contain any poisonous ingredient or ingredient injurious to health, shall not be deemed to be adulterated in the following cases:

First: In the case of mixtures or compounds sold under their own distinct names, or under coined names, which may now or from time to time hereafter be known as healthful articles of food, and which are not an imitation of, or sold under the name of, any other article.

Second. When any matter or ingredient has been added to the food because the same is required for the production or preparation thereof as an article of commerce in a state fit for carriage or consumption, and does not fraudulently increase the bulk, weight, or measure of the food, or conceal the inferior quality thereof.

Third. When the food is unavoidably mixed with some extraneous matter in the process of collection and preparation.

Sec. 7. That the Food Commissioner, under the direction of the Secretary of Agriculture, is hereby authorized to cause all food products whether simple, compound, mixed, or blended to be properly branded, and prescribe how this shall be done; provided, that nothing in this act shall be construed as requiring or compelling proprietors or manufacturers of proprietary foods to disclose their trade formulas, except in so far as may be necessary to secure freedom from adulteration, imitation, or fraud.

Sec. 8. That it shall be the duty of the Food Commissioner, under the direction of the Secretary of Agriculture, to fix standards of food products, and to determine the wholesomeness or unwholesomeness of preservatives or other substances which are or may be added to foods. To aid him in reaching just decisions in such matters he is authorized, subject to the approval of the Secretary of Agriculture, to appoint for a term of four years, one physician, one food analyst, one physiologist and pharmacologist, one medical officer of health, and one representative of food manufacturers and producers, at a salary of three thousand dollars per annum each, to be known as the Committee on Food Standards, each of whom shall be an expert and a recognized authority upon the subject embraced by his profession. The Commitee on Food Standards shall decide as to the wholesomeness or unwholesomeness of preservatives or other substances which are found in or may be added to foods, and recommend standards for foods and food products, and also recommend the character of the label which it shall be lawful to use upon each article of food or food product. The standard of each article of food or food product agreed upon and recommended by said committee, and approved by the Food Commissioner and the Secretary of Agriculture, shall be the standard to which all articles of food or food products manufactured for sale, offered for sale, exposed for sale, sold or exchanged, shall conform. It shall be the duty of the Secretary of Agriculture to publish, from time to time, the decisions of said committee for the information of the public and said decisions, when duly approved and certified by the Food Commissioner and the Secretary of Agriculture, shall be admitted as *prima facie* evidence in the United States courts.

Sec. 9. That every person, partnership or corporation, and the agent or representative of any person, partnership or corporation, who manufactures for shipment and delivers for transportation, from any State, Territory, or the District of Columbia to any other State, Territory, or the District of Columbia any article of food, and every person, partnership or corporation and agent or representative of any person, partnership or corporation, who exposes for sale or delivers to a purchaser any article of food received from a State, Territory, or the District of Columbia other than the State, Territory, or the District of Columbia in which he exhibits for sale or delivers such article of food, shall furnish to any person duly authorized by the Food Commissioner to receive it, applying within business hours, a sample of such food article in his possession in sufficient quantity for examination and analysis, upon tender of payment of the selling price of such article. And in the presence of such dealer and said duly authorized agent of the Food Commissioner, if so desired by either party, said sample shall be divided into two parts and each part shall be sealed by a seal of a design to be prescribed by the Food Commissioner. One part shall be left with the dealer and one delivered to the chemist of the Food Bureau.

Sec. 10. That whoever refuses to comply, upon demand, with the requirements of Section 9 of this act shall be guilty of a misdemeanor, and, upon conviction, shall be fined not to exceed one hundred nor less than twenty-five dollars, or imprisoned not exceeding one hundred nor less than thirty days, or both. And any person, partnership or corporation, and the agent or representative of any person, partnership or corporation, found guilty of manufacturing, offering for sale, having in possession with intent to sell, or selling an adulterated, impure, or mis-branded article of food in violation of the provisions of this act shall be adjudged to pay, in addition to the penalties heretofore provided for, all the necessary costs and expenses incurred in inspecting and analyzing such adulterated articles which said person may have been found guilty of manufacturing, offering for sale, selling, or having in possession with intent to sell.

Sec. 11. That all manufacturers, manipulators, compounders, or mixers of compound, mixed, or imitation food intended for interstate or foreign traffic, shall make application to register said products for any State or foreign transportation to the Secretary of Agriculture, and in such application certify under oath that the article or articles manufactured, manipulated, compounded, or mixed are not deleterious or injurious to health, and agree to brand or pack said articles as prescribed by the rules of the Food Commissioner; and upon the payment of ten dollars the Secretary of Agriculture shall register such individual, firm, or corporation and have issued a certificate of registration, under the rules prescribed by him, of each and every article described, as herein provided; and said certificate of registration, together with the label, brand, or package prescribed, shall be lawful evidence of compliance with the provisions of this act to all transportation companies engaged in interstate or foreign traffic. All moneys received under this section shall be covered into the Treasury of the United States, and to be appropriated by Congress for the purpose of properly carrying out the provisions of this act, or for such other purposes as may be deemed advisable in connection with the work of the Department of Agriculture. Any failure to comply with the provisions of this section shall be a misdemeanor punishable as is provided for a misdemeanor under Section 2 of this act.

Section 12. That any article of food that is adulterated within the meaning of this act, and is transported or is being transported from one State to another or to a foreign country for sale, or that is sold or offered for sale or had in possession with intent to sell, in the District of Columbia and the Territories of the United States, shall be liable to be proceeded against in any district court of the United States, within the district where the same is found and seized for confiscation, by a process of libel for condemnation. And if such article is condemned as being adulterated, the same shall be disposed of as the court may direct, and, if sold, the proceeds thereof, less the legal costs and charges, shall be paid into the Treasury of the United States. The proceedings in such libel cases shall conform, as near as may be, to proceedings in admiralty, except that either party may demand trial by jury of any issue of fact joined in such case, and all such proceedings shall be at the suit of, and in the name of, the United States.

A New Way of Retailing.

One of the wholesale grocers of Chicago has for the past few months been endeavoring to interest the trade in a new method of selling goods to the public. In order to meet the competition of chain stores which, as a general thing, sell for cash and make no deliveries, this new method is based upon that type of retail service. The so-called "Neutral Price Flag" of the Sheppard-Strassheim Company bears three broad stripes, one red, one white, one blue. The red stripe symbolizes net cash terms, the white C. O. D. terms, and the blue, charge and delivery terms. The housewife is given the choice of, for example, a can of baking powder for 19 cents if she cares to pay cash and carry the purchase home, for 24 cents if she prefers to have the order sent to her C. O. D., and for 25 cents if she elects to avail herself of the customary credit and delivery service. The basic figure is the net cash price and it is assumed that a flat charge of 5 cents on each order, irrespective of its size, will pay for all delivery expenses including the cost of collection of the purchase price. The average grocery order runs to about 50c. The additional charge of 1 cent per order, or 2% on income, is supposed to take care of all loss due to bad accounts and also the expense of running a bookkeeping department.

The Aswell Bill

Mr. James B. Aswell, Representing the 8th District of Louisiana, on December 14, 1916, Introduced in the House of Representatives, the Following Bill, H. R. No. 18914, Which Was Referred to the Committee on Agriculture:

A BILL to change the name of oleomargarine to "margarine"; to change the rate of tax on margarine; to protect consumers, dealers, and manufacturers of margarine against fraud; and to afford the Internal Revenue Bureau means for the more efficient detection of fraud and for the collection of revenues.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That in lieu of the taxes imposed by law upon the substances, mixtures, or compounds heretofore known as oleomargarine and hereinafter designated as margarine, when artificially colored of 10 cents per pound, and when not artificially colored of one-fourth cent per pound, there shall be levied, collected, and paid a tax of 1 cent per pound and fraction thereof, to be paid by the manufacturer thereof, which tax shall be represented by internal-revenue stamp or stamps so affixed to the respective "manufacturers' original packages," hereinafter provided for, as to seal them securely, so that said packages may not be opened without destroying the stamp or stamps affixed thereto; and it shall be unlawful for any dealer to break said stamps, or to have in his possession such packages upon which said stamps have been broken or otherwise defaced: *Provided,* That margarine may be removed from the place of manufacture, in such forms and under such regulations as are now or may hereafter be prescribed, for export to foreign countries, or for consumption upon vessels plying between ports of the United States and those of foreign countries, or for the use of the United States Government, without the payment of tax or affixing stamps thereto.

Sec. 2. That all substances, mixtures, or compounds heretofore known as oleomargarine shall hereafter be known and designated as margarine, and shall be put up by the manufacturers in their factories in separate "manufacturers' original packages" of one-fourth, one-half, one, two, three, or five pounds each, and in neither larger nor smaller subdivisions, in sanitary form. The manufacturers shall pack said "manufacturers' original packages" into "shipping packages" containing not less than ten pounds each; upon each of said "shipping packages" shall be plainly stamped or printed these words: "Notice.—The manufacturer of the margarine herein contained has complied with all the requirements of the law. Every dealer is cautioned not to break or deface the 'manufacturers' original packages' herein contained or the revenue stamp or stamps thereon." Upon each of said "manufacturers' original packages" shall be plainly stamped or printed these words: "Notice.—Every person is cautioned not to use either this package or the stamp or stamps thereon again, or to remove the contents of this package without destroying the stamp, under the penalty of the law in such cases."

Sec. 3. In lieu of the special taxes or licenses now required by law of manufacturers and dealers in oleomargarine, special taxes to be collected in the manner now or hereafter provided by law, shall be, and are hereby, imposed annually upon manufacturers of, and dealers in, margarine as follows: Manufacturers of margarine shall each pay $480. Wholesale dealers in margarine shall each pay $48. Retail dealers in margarine shall each pay $6.

Sec. 4. That margarine is hereby declared to be a food product; and, except as modified or repealed by this Act, the provisions of existing laws, rules, and regulations relating to oleomargarine, pure foods, and drugs, and the internal revenue, including the powers of the Secretary of Agriculture, the Commissioner of Internal Revenue, and other officials, to make and enforce rules and regulations for the inspection, labeling, branding, and distribution thereof, and the assessment and collection of the revenue thereon, and including the penal provisions for the punishment of violations of said laws, rules, and regulations, are hereby made to apply to the manufacture, inspection, sale, and distribution of said food product.

The Legal Control of Margarine.

In times like these when the desirability of revamping the present legal control of margarine is under discussion, it is of interest to know how this matter is handled in foreign countries. The following digest of the laws in a number of countries is necessarily brief, but will serve to give the salient features in each instance:

ENGLAND.

The British law permits the artificial coloration of margarine, limits its content of butter fat to 10%, limits the moisture content to 16%, and requires dealers to use a wrapper marked "Margarine" for all retail sales.

HOLLAND.

The Dutch law permits artificial coloration, requires the word "Margarine" to be shown on packages displayed for sale and also requires all goods sold to be enclosed in a wrapper similarly marked.

BELGIUM.

The Belgian law permits artificial coloration, levies a government tax of ½c. per pound, establishes a fat standard of 82%, requires the use of 0.5% each of sesame oil and potato flour (for the purpose of making it chemically easy to distinguish margarine from butter) and requires the retail dealer to mark packages properly.

FRANCE.

The French law prohibits the artificial coloration of margarine and does not permit its sale in stores where butter is sold. It requires retail dealers to display "Margarine" signs and to mark their packages properly.

GERMANY.

The German law permits the artificial coloration of margarine, requires the use of 10% of sesame oil and stipulates that manufacturers' packages shall be marked with a red streak 2 cm. large on containers with height up to 35 cm. and at least 5 cm. on higher containers, and that retailers' packages shall be properly marked and labeled as "Margarine." It does not allow the mixing of butter with margarine and prohibits the handling or manufacture of margarine in places where butter and cheese are made or handled. It does not allow margarine to be put up in "butter shapes" and specifies that manufacturers must make their location known to the authorities and furnish information regarding materials, methods, etc., when required.

NORWAY AND SWEDEN.

In Norway and Sweden the law permits artificial coloration and requires the use of a certain percentage of sesame oil. It prohibits the manufacture of margarine in creameries where butter is made and places the margarine manufacturer under government inspection. It requires dealers to display a sign when selling margarine and manufacturers' and retailers' packages to be labeled or marked "Margarine." It also requires that margarine must be packed in containers whose length is twice their width.

DENMARK.

The Danish law permits artificial coloration of margarine up to a certain standard established by the government, requires the use of a certain percentage of sesame oil, and stipulates that a red band shall be placed around the outside of each original or shipping package and that each package shall be plainly marked "Margarine."

The Manufacture of Butter and Margarine

By the Editor.

THE origin of butter antedates recorded history. However, it is not difficult to picture the probable first instance of the manufacture of this table fat which has for so long a time been such an important part of our dietary. Perhaps our early ancestors in their nomadic wanderings attempted to carry from the old home to the new a few gallons of milk, only to find to their surprise at the end of the journey that the constant agitation which it had received had transformed the milk to butter. That sort of thing happens in the twentieth century A. D and it might very well have happened in the twentieth century B. C.—or earlier.

In butter making the tiny globules of fat which exist naturally in milk or cream are by constant agitation made to collide one with another, a process which sooner or later results in a considerable number of globules coalescing to form a spherical aggregation of practically pure fat which ranges upward from the size of a grain of wheat. As cream contains more fat globules to the cubic inch than does milk, it is evident that it is wiser to make butter from the former than from the latter. In fact, no one would seriously consider making butter from anything other than cream.

Butter is a biological product. It is to the presence of the various end products of fermentation that the delicious flavor of well made butter is due, and by the same token it is the end products of undesirable fermentation that give rise to the disagreeable odor and taste characteriste of bad butter. The butter maker must constantly bear in mind that he is dealing with a living organism. It is a vegetable growth rather than animal, but so low a form is it that the line of demarcation is largely arbitrary. As in all matters of a bacteriological nature, the two most important controlling conditions are proper temperature and absolute cleanliness. And between them they cover a multitude of small details which must be observed if the product is to be what it should be. Margarine, containing as it does a certain amount of butter fat, must be handled with practically the same scrupulous regard for petty detail as is butter.

Statistics.

Before discussing the subject of butter making in detail it may, perhaps, be well to glance at a few figures. At the time of the last census (1909) there was manufactured in this country a total of approximately one and one-half billion pounds of butter, of which very nearly one billion or 60% was manufactured on the farms, some 6,361,502 in number, the balance of 624,764,653 pounds being a product of the factories. The same year, 1909, there were manufactured some ninety-two million pounds of margarine, which figure has in the interval between 1909 and 1916 increased to 152,183,085 pounds. At the time of taking the last census the population of this country was about ninety millions. Thus it will be seen that our annual per capita consumption of table fats is in the neighborhood of 19½ pounds, the oleomargarine consumption per capita being 1½ pounds and the balance consisting of butter. It is interesting to compare these figures with the annual per capita consumption in Great Britain which was, before the war, 17 pounds of butter and 8½ pounds of margarine, a total of 25½ pounds. In Denmark, one of the leading butter producing countries of the world, the annual per capita consumption of margarine is 43 pounds, more than twice the total consumption of table fats in this country. In Norway, the annual per capita consumption of margarine is 33½ pounds, and in Holland, 20 pounds, the consumption of butter not being a matter of record. As to the quality of American butter, McKay and Larsen in their *Principles and Practice of Butter Making* state that "The observations of the authors have been that the reputation of the American butter is not all that is desirable on the English market. Some American butter is good enough to sell on an equality with Danish butter, and in some instances it is palmed off for such. Much poor butter, however, has been allowed to go on the English market, and this has in some measure ruined the reputation of our butter. * * * The standing of the different kinds of butter, as observed on the English market, were as follows: (1) Fresh French Rolls. (2) Danish Creamery. (3) Irish Creamery. (4) New Zealand. (5) Canadian, Australian, Argentine, United States and Siberia. For storage purposes: (1) Danish. (2) New Zealand. (3) Siberia." Thus it will be seen that in the eyes of Great Britain there is but one worse butter than ours, and that comes from Siberia. Furthermore, for the purpose of storage—the crucial test of any butter—our butter is not even considered although that of Siberia is so used. The claim that the recognition of oleomargarine tends to demoralize the butter industry is certainly not borne out in the case of Denmark, a country where butter making is practiced at its best.

Various Types of Butter.

Farm made butter is called dairy butter. That made in establishments devoted exclusively to that purpose is called creamery butter. Of that made on the farms it is probably safe to assume that about five hundred million pounds are eaten by the farming community. The remaining five hundred million pounds are sold to private customers such as individuals, hotels, restaurants, grocery stores in the neighborhood, or commission houses in nearby cities. It is unfortunately true that a large part of the dairy butter is of poor quality, the chief defect being a bad flavor which is due largely, or entirely, to changes in the cream before it is

Photograph from McIntosh Stereopticon Company.

HAND SEPARATOR.

churned rather that to subsequent treatment of the butter. Much dairy butter forms the raw material for the process manufacturers, whose method of operation will be described later. Dairy butter encompasses a wide range as far as quality is concerned. No doubt some of it leaves little to be desired as to palatableness, wholesomeness and sanitary qualities. The great bulk of it, however, is under suspicion at present. Pasteurization among dairy farmers is practically unknown and it is difficult to convince the average farmer of the necessity for absolute cleanliness in connection with all stages of butter making from the milking of the cow through the entire process even to the packaging of the finished product. Taking it by and large, probably the most wholesome form in which farm-made butter reaches the market is that of process butter, in which dairy butter which has undeniably "gone wrong" is subjected to a treatment which renders it free from any danger.

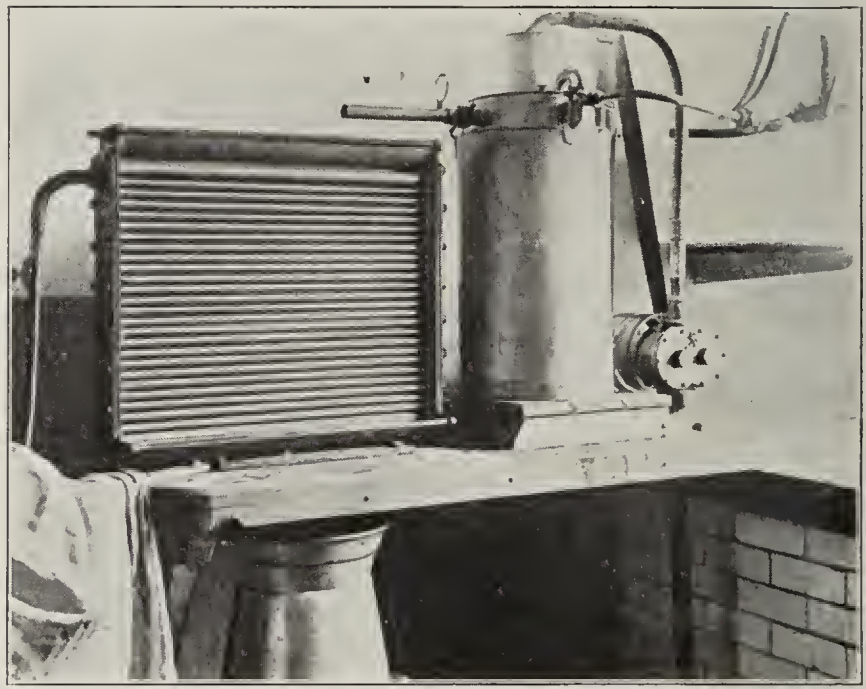
Photograph from McIntosh Stereopticon Company.

HAND CHURN.

Of the butter made in creameries there is a certain part which is an absolutely safe, high grade product—the pasteurized whole-milk creamery butter. Non-pasteurized whole-milk creamery butter might be described as a high grade product which may or may not be safe. The third general division of creamery butter is that made by the so-called centralizing plants where cream is received from the farmers located far and near. This butter is not generally considered as of as high a quality as that coming from the whole milk creameries, but, on the other hand, it is handled, for the most part, in a way which renders it quite safe for human consumption. The centralizing plants which pasteurize all cream received must be given the credit for turning out a product which is extraordinarily good in view of the poor raw material with which they are obliged to work. In 1912 the Bureau of Animal Industry reported that a recent investigation had shown that 61 per cent. of the cream received at creameries and buying stations was of third grade, that is, "dirty, decomposed and sour." The same report showed that pasteurization was practiced in but 27 per cent of the creameries and that 94.5 per cent. of the creameries were unsanitary to a greater or less degree. Since that time there has been considerable improvement in the commercial butter business, but there is undeniably room for more. Dairymen and creamerymen have no hesitancy in going on record at conventions and elsewhere as to the wisdom of pasteurization, sanitary methods of manufacture and other laudable improvements in their business but when it comes to putting their professions of faith into good works they display a strange hesitancy. McKay and Larsen state that the one great argument against pasteurization is the cost of the pasteurizer. Another claimed objection to pasteurization is that when employed in butter making it renders absolutely essential the application of the highest degree of skill and intelligence. Evidently the butter industry would be better off in the hands of large producers, as it is only in big unit production that expensive apparatus and high grade labor can be economically employed.

Photograph from McIntosh Stereopticon Company.

TABLE FOR WORKING DAIRY BUTTER.



Photograph from McIntosh Stereopticon Company.

DAIRY PASTEURIZER.

Dairy Butter Making.

Those of us who grew up on a farm remember the interesting process of butter making. While those days are some years in retrospect, the process has not changed materially and is interestingly described by Mr. J. R. Keithley, in *Farm Butter Making,* Farmers' Bulletin No. 541, U. S. Department of Agriculture, about as follows:

In case the cream is to be separated by its own low specific gravity, or "skimmed," the whole milk designed for butter making is held for some hours, at a temperature of from 50° to 40° F. Generally the cream is allowed to rise in shallow pans some 3 or 4 inches deep and about a foot in diameter. Drafts are to be avoided lest the cream becomes leathery. After a number of hours it is removed by a ladle. What is known as "deep setting" involves the use of a tall can, known as the "shotgun" type, about 8 inches in diameter and 18 or 20 inches high, which, after being filled with milk, is set in cold water. This method is really better than the more commonly used shallow pan method because it more quickly cools the milk to a relatively low temperature, meanwhile exposing less of its surface to the atmosphere with the consequent absorption of possible undesirable flavors. If the cream

Photograph from McIntosh Stereopticon Company.

PASTEURIZING BY THE INTERMITTENT OR BATCH SYSTEM.

is to be removed from the milk by the use of a centrifugal separator it is generally kept at a fairly high temperature, 90° to 92° F., from the time of milking to that of separation. It should, of course, be separated as quickly after milking as possible inasmuch as milk at this temperature is the finest sort of medium for the multiplication of bacteria. If, as is generally the custom on the farm, the separated cream is to be held for several days or until a sufficient amount is collected to justify churning, it should be kept at a temperature sufficiently low to check bacteriological action. If possible it is well to keep such cream at 50° F., and even lower if practicable. About 24 hours before churning all cream being held for that purpose is mixed in a ripening vat and raised to a temperature of from 65° to 70° F. The cream is held at this temperature for 8 to 12 hours and then gradually cooled to the proper temperature for churning, which is from 50° to 52° F. In order to insure proper texture in the butter it is well to keep the ripened cream at this low temperature for the 3 or 4 hours immediately preceding churning. In order to hasten the process of ripening it is sometimes necessary to make use of some sort of "starter," which is generally sour milk in an active state of fermentation. As a usual thing the farmer's cream sours, or ripens, as a result of the action of bacteria which are normally present therein. It is the object of every butter maker to produce a clean, acid flavor in the cream and to churn when this flavor has been obtained, so that it may be preserved by the fat and be present in the finished butter. The methods of determining the ripeness of cream are many and various. Generally the farmer contents himself with simple tests based upon taste, smell and appearance. It is highly essential that during the ripening process the cream should be stirred frequently and thoroughly. The brilliant yellow natural to butter produced from milk secreted by the cow during the two or three months when she is having an abundance of green, succulent food is simulated during the balance of the year by means of the use of butter color. This is generally annatto, which is a harmless vegetable dye, used at the rate of 2 to 6 ounces of color for every 100 pounds of butter. It is added to the cream just before churning. The average dairy farmer makes use of a barrel churn into which is run ripened cream until the churn is from one-third to one-half full. The amount of cream in the churn is a very important matter, as is the speed of churning. If there is not enough cream in the churn it has a tendency to cling to the walls of the churn and receives little or no agitation. On the other hand, if there is too much cream, the churn is so full that there is no room left for agitation. In the same way too high speed develops sufficient centrifugal force to cause the cream to remain in one end of the churn and escape agitation. With too little speed the cream flows from one end to the other of the churn with practically no effect. Effort is made to tumble the cream about as much as possible as the act of churning brings about cohesion of one fat globule with another as a result of concussion.

The two most important factors in churning are the relative amount of butter fat in the cream and the temperature thereof. Cream for churning should contain 25 to 30 per cent butter fat and the churning should be conducted at such a temperature as to produce butter in from 25 to 30 minutes. The acidity of the cream has a certain effect upon the time and completeness of churning. It is, of course, possible to make butter from sweet cream and unripened cream butter has points of excellence especially for certain purposes, such as storage, as is pointed out by L. A. Rogers, S. C. Thompson, and J. R. Keithley in *The Manufacture of Butter for Storage*, Bureau of Animal Industry Bulletin No. 148. However, it is a fact that most butter is made from ripened cream, and the ripening process in addition to developing a desirable flavor assists in rendering effectual easy churning. Churning is stopped as soon as butter commences to form in globules about the size of wheat or peas. The massing of butter into aggregates any larger than this is likely to result in the incorporation of buttermilk which will be found to be very difficult of removal. Also it is possible more easily and uniformly to distribute salt throughout butter when it is in the form of small granules. The size of the granules can be controlled by stopping the churn frequently after the butter "breaks." When the process of churning is completed, the buttermilk is drawn off through a sieve and the butter is then washed with water a few degrees colder or warmer than was the buttermilk. The temperature at which to have the wash water depends upon the condition of the butter at this stage of the process. If it is firmer than it should be, warmer water is used; if it is too soft, colder water is employed. The reasons for washing butter are to remove the buttermilk, to improve the keeping quality of the butter and to harden the butter in order that it may be more easily handled and packed. Generally an amount of water equal to that of the removed buttermilk is used and eight to twelve revolutions of the churn are generally sufficient to free the butter of buttermilk. The washed butter is then salted. This results in improving the flavor and rendering the butter less likely to deteriorate. The amount of salt used varies with the demands of the market and ranges from 0.5 ounce to 1.5 ounces to a pound of butter. While some of the larger dairies, those producing perhaps 500 pounds a week, carefully weigh the salt, it is customary in the smaller dairies to estimate the weight of the butter in the churn and guess at the amount of salt necessary. This estimation and guess work is one of the reasons why farm butter is of poor quality. Salt is worked into the butter in such a manner as to produce a compact, fairly firm, close-textured product, the even distribution of the salt and the expulsion of the water and the buttermilk being achieved at the same time. The amount of working necessary depends upon the physical properties of the butter and of the salt. If the butter is lumpy or very hard, more working is called for than otherwise. If the salt is not well pulverized it renders dissolution and distribution difficult. Well worked butter has a firm, glossy appearance and when torn apart resembles the physical structure of broken iron. There should be no grittiness discernible by testing a small piece of butter between the teeth. Salt which is unevenly distributed will give a mottled appearance to the finished butter. On the other hand, over-worked butter becomes greasy in appearance and does not keep well.

The farmer sends his butter to the market in crocks, fibre boxes, paper, dishes, packages, pans, and almost anything that is handy. Of these methods, probably the best method, all things considered, is that of forming the butter into bricks and wrapping them in oiled paper, which, in turn, is enclosed in a carton. The cost of packaging is insignificant and it protects the butter from contamination, at the same time permitting easy identification.

Creamery Butter Making.

Commercial butter making covers the same ground. Theoretically, dairy and creamery methods are identical although practically there are several points of difference which are of interest. Whole milk creameries and centralizing plants receive milk or cream, as the case may be, from farmers in the surrounding territory. Payment is made upon the basis of butter fat, the Babcock test being almost universally used as a means of ascertaining the amount of fat in the milk or cream. Many whole milk creameries are co-operative institutions, owned by the farmers who patronize them. As a consequence the tendency is to pay as much for the raw material as the market price of butter will permit. In many parts of the country it is customary to credit the farmers at the rate of 2 cents less per pound of butter fat delivered than the going price of creamery "extra" butter on the New York market. Needless to say, there is more than a 2 cents per pound differential between the price of the raw material and that of the finished product. There are many valuable constituents of whole milk other than the butter fat contained therein and also the butter maker turns out more pounds of finished butter than he receives of butter fat in the milk, the excess produced being termed "over-run." There are several factors determining the amount of "over-run," the principal ones being the composition of the butter, the loss in the fac-

Photograph from McIntosh Stereopticon Company.

RECEIVING ROOM IN A LARGE CREAMERY. MANY OF THESE CANS HAVE TRAVELED 250 MILES.

Photograph from McIntosh Stereopticon Company.

CHURNS AT WORK IN A LARGE CREAMERY.

tory incident to all forms of food manufacture, thoroughness of churning, and the relative amount of butter fat left in the skim milk. Expressed in terms of fat paid for by the creamery, the average "over-run" is from 16 to 20 per cent. In butter circles it is customary to regard 0.1 of 1 per cent as the allowable fat in skim milk and 0.2 of 1 per cent in buttermilk.

The cream delivered to centralizing plants should, of course, be sweet when received. As a matter of fact the centralizing plants draw supplies from so extensive an area that it is a physical impossibility for all cream so received to be sweet. As was pointed out above, not more than four years ago about two-thirds of such gathered cream was "dirty, decomposed and sour."

Sour cream is highly acid. The commercial butter makers have found, as is stated in *Principles and Practice of Butter Making*, that "If the inferior quality of cream and milk can be pasteurized, neutralized with an alkali, such as powdered chalk or bicarbonate of soda, then inoculated with a desirable species of bacteria and re-ripened, the quality of butter can be improved several points." This is but a temporary improvement as butter made from cream that has been neutralized does not keep well. The neutralization of sour cream has not been generally advocated. It has, however, been put into practice more generally than it has been advocated—at least *publicly* advocated. Sweet cream contains about 0.15 of one per cent lactic acid, and sour cream anywhere from 0.5 to 0.7 of one per cent. The neutralization of this excessive acidity is resorted to rather than to permit the sour cream to go into industrial channels. It is a vicious practice and ought to be prohibited, as it is entirely feasible by proper methods of collecting and storing cream to confine the manufacture of butter to cream with a fairly low acid content.

Pasteurization.

Where the creamery most significantly parts company with the dairy is in the matter of pasteurization. Although but 27 per cent of the creameries employ this highly desirable adjunct to butter making it is so vital a part of rational butter making that it will be described in some detail. Pasteurization is *not* sterilization, but it is as near as one can approach sterility by heat when working with milk. The high and long continued heat of sterilization cooks milk and thereby renders it non-available for butter making. Pasteurization consists in subjecting milk to an intensity of heat equivalent to 145° F. for twenty minutes and then rapidly cooling to about 50° F. It has been found that this amount of heat will kill all bacteria except those which have sporulated—or "gone to seed." The heat of pasteurization does not kill spores. There are two methods in general use—the intermittent and the continuous—the latter being employed by such creameries as make use of the process. By the intermittent method each batch of cream is treated separately; by the continuous, a steady stream of cream travels through the pasteurizer. The continuous machines transmit the desired amount of heat to the cream by means of a relatively high temperature during a relatively short period.

There are many arguments in favor of pasteurization, chief of which is it destroys pathogenic germs. The Danish government made it obligatory as a safeguard against tuberculosis. It raises the quality of the butter by eliminating all undesirable micro-organisms, thus allowing the pure culture of the starter to work unhampered. It removes, at least partially, taints due to natural causes such as weeds eaten by the cow. It lessens deterioration in storage butter. This might seem to be included in the quality of the butter but there is a difference. Of two butters of equal grade, one pasteurized and one raw, stored side by side for eight or ten months, the pasteurized will at the end of the storage period have the better score.

Lactic Acid Cultures.

Among the more scientific creamery men it has become customary to use "starters." These are pure cultures of bacteria which can be relied upon to produce the lactic-acid fermentation desired. This biological accessory to the butter making industry was worked out in Denmark and many of the best strains of bacteria now used in this country owe their origin to that part of Scandinavia. There are probably a dozen commercial laboratories in the United States engaged in manufacturing pure lactic acid cultures some of which are sold in liquid form and others in the form of powder, the dry substance of the powder being due to milk-sugar or some similar nutritive preservative medium. When used with raw milk the theory is that the relatively large number of desirable bacteria overcome any undesirable growths in the ripening cream by virtue of their own numbers and the particularly active state of growth of the culture. As pasteurization kills practically all bacterial life, the use of a starter with pasteurized cream is almost essential. Certainly it is desirable and the finest type of butter is made from pasteurized cream in which the process of ripening has been artificially started.

Chemical Control of Ripening.

The ripening process in a creamery is regulated a bit more scientifically than is the case among the farmers. Instead of relying upon the senses, the creamery man makes use of a titration test consisting of the addition to a small amount of ripening cream of an alkaline solution which serves to neutralize the acid in the ripening cream. The point of neutralization is made known through the agency of a chemical indicator (generally a drop of phenolphtalein) which is added to the cream before mixing it with the alkaline solution. The amount of alkali required to neutralize the acidity in a certain amount of cream indicates the amount of acidity in the cream. Ripening is continued until a certain predetermined amount of acidity has been developed. This varies with many factors but it is an improvement over the earlier method of guessing at things.

The churning of the butter in large lots in creameries is not entirely different from that process as carries out on the dairy farm. It is becoming customary to use the same machine for churning and, later, working the butter. This permits economy in time and in equipment and also does away with considerable handling of the product thereby avoiding possible contamination.

* * *

Margarine.

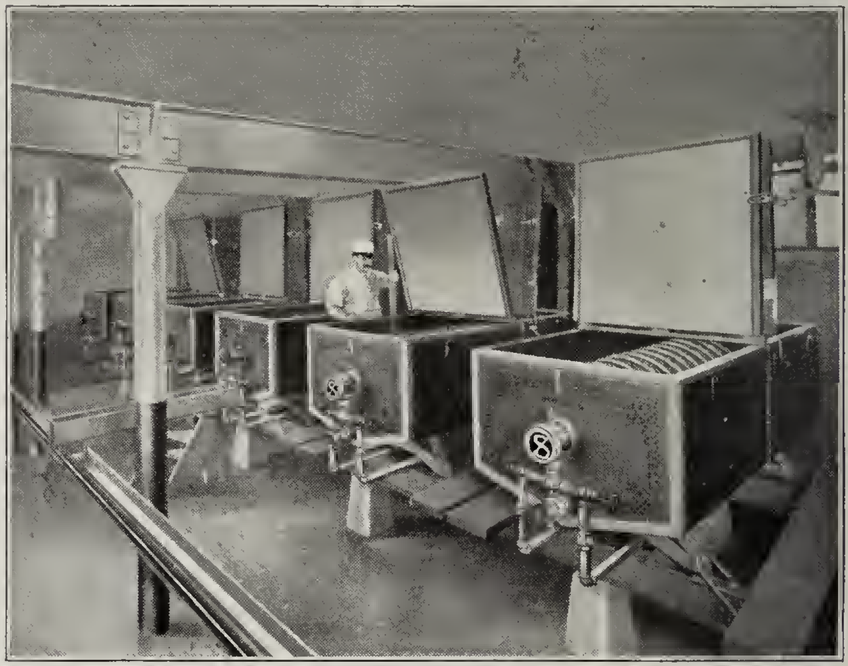
On April 12, 1872, the Paris Health Council authorized the sale of a new edible fat, at the same time making provision that it should be sold upon its own merits and not marketed under the name of butter. The story runs that Napoleon III, in an effort to reduce the high cost of living, had commissioned a French chemist, M. Mége-Mouries by name, to endeavor to develop a good, wholesome and cheap substitute for butter. Inasmuch as the very mention of the word "margarine" seems to arouse the hostility of the dairy interests, it will, perhaps, be well to take our account of the origin of margarine from an official dairy text-book.*

"The process which M. Mouries used was an excellent one. Nothing but the very best of fat was used. The stearin was separated from it, thus leaving a fat with a relatively low melting-point, similar in that respect to butter. The raw fat possessed a peculiar and undesirable animal taste which his particular process of manufacture eliminated.

"The thoroughly washed and finely chopped fat was put into a tank. For every 1,000 parts of fat, 300 parts of water, 1 part of carbonate of potash and two well-cleaned stomachs of pigs or sheep were added. The mixture was held at a temperature of 113° F. for a few hours to digest the fatty tissue. It was then allowed to cool to effect the crystallization of the stearin and palmatin, after which it was put into a press. The term 'oleomargarine' was applied to this new expressed fat. The product was pure, wholesome and nutritious. The manufacture of it soon became an established industry in France, America, Germany, Austria, Russia, Holland and other countries. It was an excellent cooking fat, containing a greater percentage of fat, and possessing better keeping qualities than average butter, and excelling poor butter in flavor."

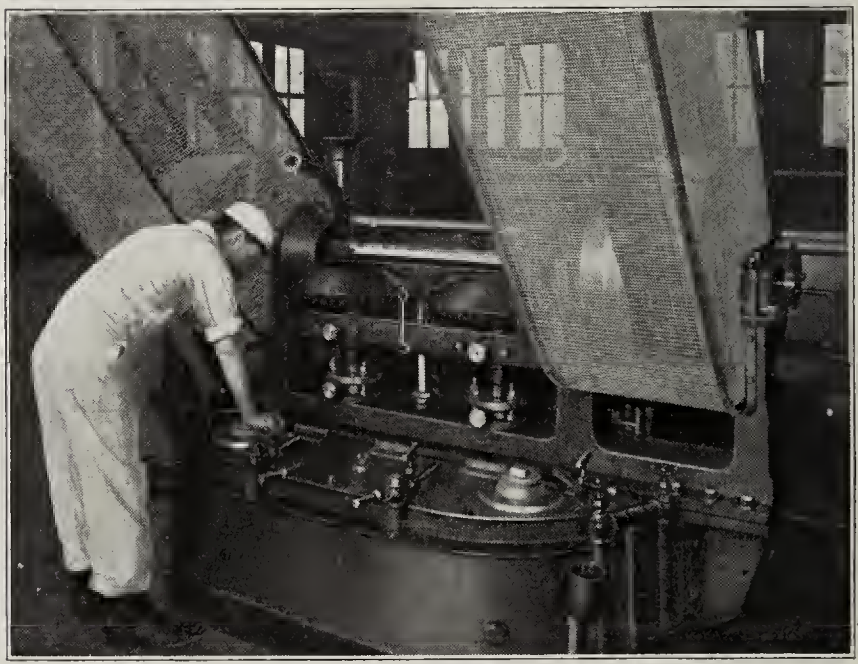
The chemist had succeeded in imitating the physical process by which the body fat of a cow becomes changed into milk fat, and had obtained "a fat which melted at almost the exact temperature of butter, possessed a sweet and agreeable taste and which for most purposes could replace ordinary butter, not, of course, the finest grades, and was superior to it in possessing the advantage of keeping for a long time without becoming rancid."

During the forty-five years that margarine has been in existence the method of making it has changed slightly. Instead of using nothing but beef fat, it has been found possible to incorporate a certain amount of the best quality of lard, that known as neutral leaf lard, and many formulas call for the use of vegetable oils such as cotton seed oil, peanut oil and others. The various ingredients are combined in such proportions as to give the product a melting point about the same as butter. It is, of course, well known that in order to be digestible fats must melt at the temperature of the human body, which is between 98° and 99° F. With this point borne in mind it is possible to make use of many bland edible fats in the production of margarine.



Photograph from Swift & Co.

CREAM RIPENING VATS.



Photograph from Swift & Co.

MARGARINE CHURN.

The modern process of manufacture of margarine is as follows; and again we quote from a recognized dairy text.*

"The caul fat of freshly killed beeves is, after a thorough washing, first in tepid water, then in ice water, allowed to stand in a cold room until thoroughly chilled. It is then rendered between a temperature of 130° and 175° F. The resulting oil is allowed to cool slowly until a considerable portion of the stearin and palmitin has crystallized out. This pasty mass is then subjected to hydraulic pressure. The oil or fluid

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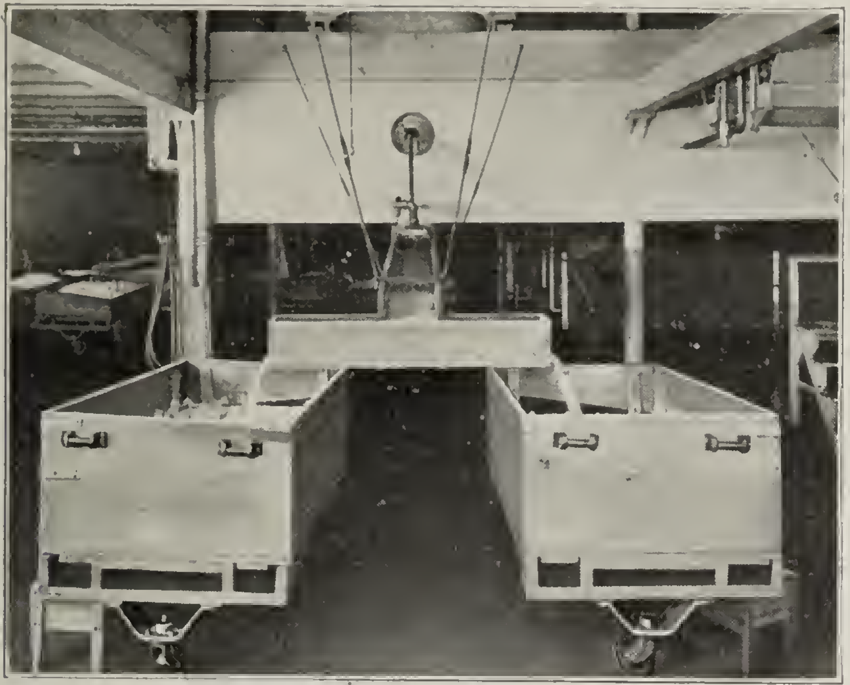
*Dairy Technology by Larsen and White.



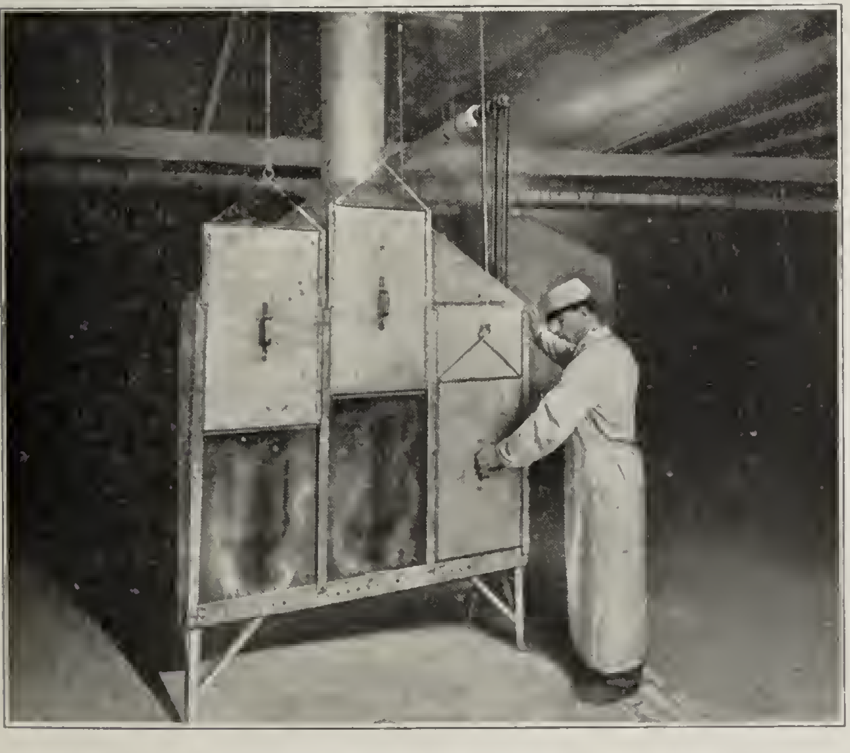
Photograph from Swift & Co.
CRYSTALLIZING VATS.

part (about two-thirds of the whole) flows out into a tank of cold water, where it solidifies into a granulated mass known to the trade as 'oleo' oil, or simply 'oleo.' The name 'oil' is somewhat misleading, as the product is a granular solid of a dull whitish color. Fresh leaf fat treated in exactly the same way as the beef tallow yields the 'neutral' lard or 'neutral' of the trade, also a granular solid of a white color.

"The objects of this treatment are twofold: to produce fats as free as possible from taste and odor; and to remove some of the stearin and palmitin, in order that the finished product may have a lower melting-point.

"The 'oleo' and the 'neutral' are then mixed. The proportions vary according to the marketing place of the product (a warm climate calling for more 'oleo,' a cold one for more 'neutral') and the amount of butter with which the mixture is flavored. This mixing is done in large, steam-jacketed vessels provided with revolving paddles, by which their contents can be easily mixed. Here the 'oleo' and the 'neutral' are thoroughly agitated with a certain proportion of milk (soured by inoculation with a pure culture of lactic-acid bacteria), and sometimes with cream, butter and cottonseed oil, depending upon the grades of the product to be manufactured.

"Having been brought into a perfect emulsion, the mixture is run into a vat of ice water, which causes the formation of crystals or granules of fat similar to small granules of butter, such as are formed in the churning of cream.



Photograph from Swift & Co.
CANS BEING STERILIZED.

"The fat granules are held at a low temperature several hours to ripen, then put into a churn, worked and salted just as in the manufacture of renovated butter."

Renovated Butter.

During the summer months when milk is plentiful there is more butter produced by the dairymen than can be consumed. Also, during the hot season it is much more difficult to control the quality of the butter, a fact which results in a lower average quality for this surplus summer butter. It is this butter which finds its way to the renovating plants.

For many years it has been the custom to re-work this surplus farm butter, adding to it additional color and salt, if it seems desirable, the salt being added to hide undesirable flavors. Butter which has been so re-worked is known as "ladles" or "ladled butter." It is a pretty poor sort of butter.

Process Butter.

In the early eighties there was worked out a very clever scheme for the renovation of bad butter. Realizing that the fermentation responsible for the spoilage of butter was confined to the non-fat elements of the butter, the casein, milk-sugar and other compounds, a process was devised which consisted in melting the butter and holding it at about 120° F. for several hours or until the curd settled out. The clear butter oil is then run into a second tank maintained at about the same temperature. Through this tank is forced from the bottom upwards air, the aeration removing practically all undesirable odor and flavor and resulting in a product which is almost tasteless and which is quite free from objectionable features. The purified oil is then emulsified with sour milk. This, of course, is necessary in order to bring back the natural butter flavor and the components of normal butter. The emulsification takes place in a cylindrical tank supplied with a rapidly revolving dasher. When fully emulsified the product is run into a vat of cold water which sudden change in temperature bring about crystallization in the butter. The butter crystals are removed from the surface of the vat, allowed to drain and ripen for a few hours, then they are salted and worked as is normal butter. Process butter improves in flavor with a certain amount of aging, for which reason it is generally kept in a refrigerator for several days before leaving the factory. It is a wholesome, nutritious product, and it is exceedingly unfortunate that the process of making it has been occasionally abused by unscrupulous manufacturers. At one time there was so much surreptitious butter of this sort on the market that it was considered advisable to place the control of its manufacture in the hands of the internal revenue department and at the same time tax every pound produced. This has had the natural result of lessening its production as very few manufacturers care to conduct their business under such conditions.

Photograph from Swift & Co.
WORKING MARGARINE.

Laboratory Control with Edible Fats

By H. V. Cadwell

Laboratory Control in the Manufacture Of Butter and Margarine.

Butter, while a very complex mixture of the glycerids of a large number of fatty acids, together with casein, water, salt and traces of sugar and free acids, is divided rather simply into water, fat, casein and ash by the chemist in his first examination. If any wide deviations occur from the percentages of these materials known to be in standard butter, the chemist makes a series of tests for materials known to be possible adulterants. The standard for butter recommended by the U. S. Department of Agriculture calls for not more than 16% water and not less than 82.5% of butter fat with a Reichert-Meissl number of not less than 24 and a specific gravity of not less than 0.905 at 40x C. compared with pure water at the same temperature. When using these limits this leaves 1.5% for salt and casein. As a matter of fact, however, the percentage of salt will run from 0.5% to 6.0% but usually is under 1.0%, while the casein will average about 0.75%. It is to the manufacturer's advantage to sell all the water he can as butter; in consequence there are few butters which run less than 13% water.

The butter sample to be analyzed must be a representative sample of the whole lot, so portions are taken from several places. These are melted at as low a temperature as is possible and violently shaken until the whole mass is homogeneous and has solidified enough to prevent the separation of the water and fat. A sample for analysis is taken from this and kept in a cool place until analyzed.

Water.

A sample of about 2 gms. is placed in a weighed, flat-bottomed dish and heated on a bath at 100° C. until the weight is constant. *The loss of weight is the weight of the water in the butter sample. Multiplied by 50 it gives the percentage of water in the butter.*

Fats.

The residue from the water determination is extracted with petroleum ether until the fat is dissolved. This is filtered through a Gooch crucible which has previously been supplied with a mat by filtering through it a small quantity of a suspension of asbestos fiber, then ignited and weighed. The petroleum ether residue is washed well with more ether and dried at 100° C. and weighed. *The loss in weight is the weight of fat in the butter sample. Multiplied by 50 it gives the percentage of fat in the butter.*

Casein.

Ignite the Gooch crucible containing the residue from the fat determination at a dull red heat, cool and reweigh. *The loss in weight represents the weight of casein present. Multiplied by 50 it gives the percentage of casein in the butter.*

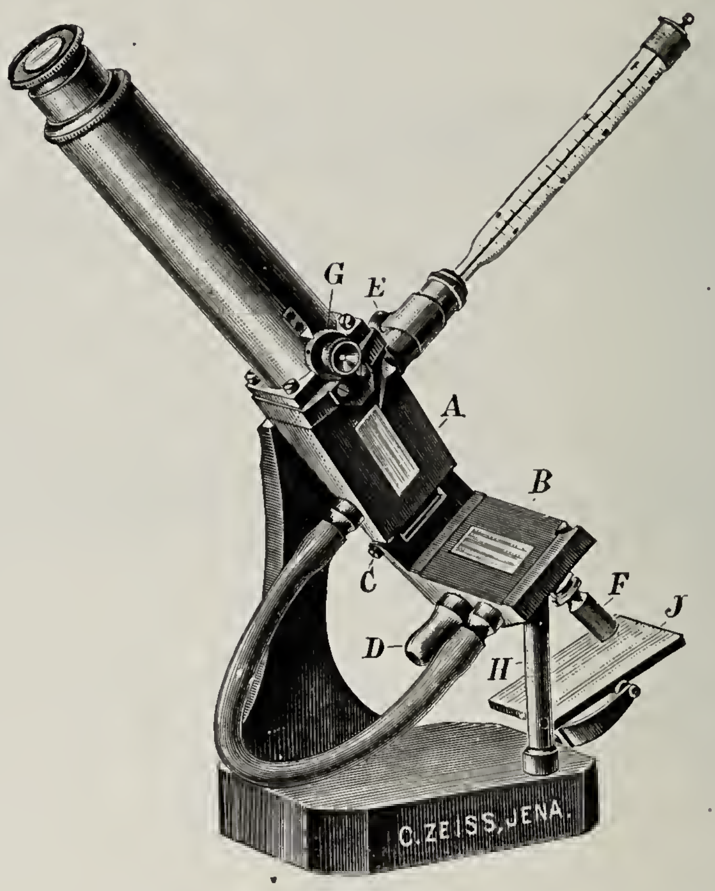
Ash.

By subtracting weight of the Gooch crucible as supplied with its asbestos mat from its weight after ignition, the weight of the ash in the butter is obtained. *Multiplied by 50 it gives the percentage of ash in the butter.* This consists almost entirely of salt. A method for determining the exact amount of salt is to titrate it with a solution of silver nitrate, using a few drops of potassium chromate soltion as an indicator.

Margarine.

Margarine is an artificial butter composed wholly or in part of fats other than butter fat. The "butter oils" are mixtures of various vegetable and animal fats and are usually distinguished from butter by the Reichert-Meissl number or by the index of refraction with an instrument such as the butyro-refractometer. The equivalent readings on this instrument to butter, margarine and butter mixtures at 25° C. are as follows:

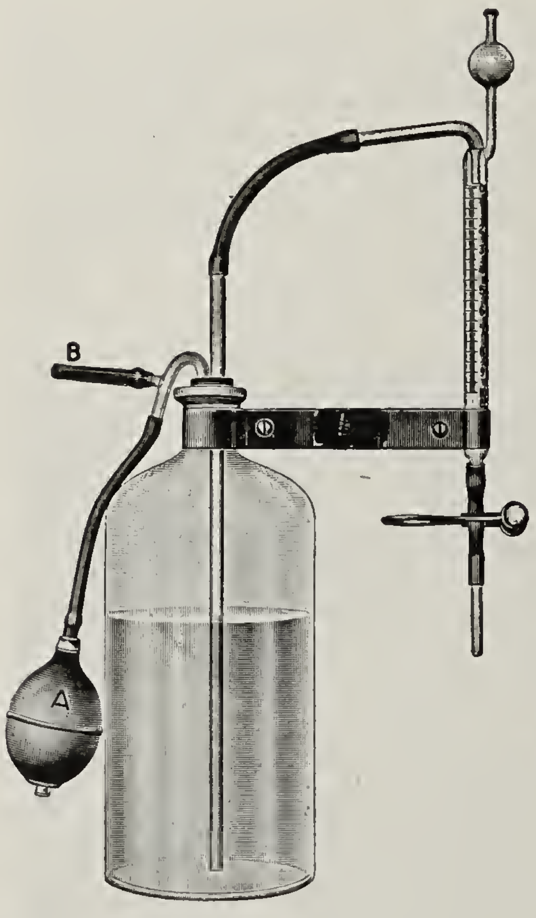
Index of refraction.	Scale divisions.	Composition.
1.4590 to 1.4620	49.5 to 54.0	Natural butter
1.4620 to 1.4690	54.0 to 64.8	Butter mixtures
1.4690 to 1.4700	58.6 to 66.4	Margarine



BUTTER REFRACTOMETER.

Showing the Double Prism Opened Out.

The lower prism B rests on the post H when open. The double prism AB is opened out and closed up by means of the bayonet lock F. The prisms are warmed by allowing warm water to flow in at D, which, after circulating around them, flows out at E. The mirror J is arranged in such a position that the border line of light may be easily adjusted. The thumbscrew G is attached to the scale which indicates the index of refraction.



SALT TEST APPARATUS.

Determination of Salt.

Weigh out in a tared dish about 5 gms. of the well mixed sample and melt with hot water. Transfer the melted mass to a separatory funnel, shake and allow the water to settle out, then draw it off. Repeat the extraction about fifteen times with 20 cc. of water, collecting all the aqueous solution in a flash. Add a few drops of a saturated solution of potassium chromate and titrate with a solution of silver nitrate containing 14.53 gms. of silver nitrate per liter. *Ten cubic centimeters of this solution equals one per cent of salt in five grams of butter. Multiplied by 20 it gives the percentage of salt in the butter.*

Reichert-Meissl Number.

The Reichert-Meissl number of a fat is the number of cubic centimeters of tenth normal sodium hydroxide required to neutralize all the volatile fatty acids present in five grams of the fat. Five grams of the butter is digested until a homogeneous solution is obtained in a solution of 10 cc. of 95% alcohol and 2 cc. of sodium hydroxide solution containing 100 gms. of sodium hydroxide per 100 cc. of water. A funnel is usually used as a stopper during digestion. The soap solution which has been formed is then evaporated to dryness on a water bath, after which it is dissolved in 135 cc. of water and then 5 cc. of a solution of 200 cc. of sulphuric acid in 1 liter of water is added. A few pieces of glass or pumice stone are then added to the solution and the flask is connected by means of a distilling bulb to a 12-inch Liebig condenser. The distillation is then carried on at the rate of 3 or 4 cc. per minute until 110 cc. of distillate has been obtained. This distillate is then titrated with tenth normal sodium hydroxide made by dissolving 4.01 gms. of the substance in 1 liter of water. *The number of cubic centimeters required is called the Reichert-Meissl number.* Butter will average about 24, while most other edible oils are below 10, and for this reason the identity of butter is usually established by this method.

Equipment Necessary.

6 dishes, aluminum, 3"	$ 1.98
1 water bath and support, 6"	4.00
1 analytical balance, sensitive 1/10 mg	54.00
1 set analytical weights, 1 mg. to 50 gms	7.00
6 separatory funnels, 250 cc	10.80
6 Gooch crucibles, No. 3	2.40
6 Gooch funnels, 35 mm	1.80
6 filter flasks, 250 cc	2.10
5 T-tubes, ¼"	.40
12 ft. rubber tubing, ¼"	1.20
6 rubber stoppers for filter flasks, 2 hole	.60
6 support stands, No. 2	1.98
6 rings, 4"	.96
6 Bunsen burners	1.80
1 dessicator, 6"	1.40
1 dessicator plate, 5½"	1.40
1 crucible tongs	.22
1 salt test apparatus	5.00
1 dropping bottle	.10
6 Erlenmeyer flasks, 250 cc	.90
1 funnel, 1½"	.10
1 distilling bulb	.50
1 condenser, 12"	1.00
1 flask, 110 cc	1.00
1 burette, 50 cc. in 10ths	1.00
1 butyro-refractometer	100.00
1 drying oven, 6"x8"x6"	6.00
1 burette clamp	.33
1 pinch cock	.09

Chemicals Necessary.

5 lbs. petroleum ether	$2.25
¼ lb. silver nitrate	2.50
¼ lb. potassium chromate	.36
½ lb. asbestos for Gooch filters	1.53
1 liter 1/10 normal sodium hydroxide	1.25
1 qt. alcohol	1.15
½ lb. pumice stone, lumps	.10
1 lb. sodium hydroxide, sticks	.60
9 lbs. sulphuric acid	.80

VITAMINES AND LIPOIDS IN BUTTER AND MARGARINE[1].

BY J. DE RUITER.

Since Osborne and Mendel found certain substances in milk and butter, apparently of lipoid nature, necessary in human food to maintain health and growth, it is interesting to compare butter and margarine as to their respective content of lipoid substances.

Of the material tested the butter was taken from one of the co-operative dairying factories in Frisia; "Klappa" and "Planta," both "vegetable butter," from special factories in Amsterdam and Oss, whereas the "margarine proper" was taken from a noted margarine factory. As far as information could be obtained, Klappa and Planta are made by means of skim milk.

First of all, an easy method was required to find the lipoid content of fats and oils. That which the writer used is based on the observation that lecithin is soluble in concentrated acids, but is precipitated again when the acid solution is mixed with water. The first observations were made with lactic acid, but more rapid results could be obtained with hydrochloric acid of 1.19 sp. gr. The lipoid precipitate could be separated easily from the diluted acid. Afterwards it was collected on a filter, washed with acid water, dried at 100° C. and weighed.

The lipoids thus obtained, after burning, gave an ash which showed a large phosphorus content on testing with molybdic reagent.

Sesame oil, thus shaken with an equal volume of hydrochloric acid (1.19 sp. gr.) proved to have entirely lost its lipoid content.

With the method described the following results were obtained:

GRAMS OF LIPOIDS IN 100 CUBIC CENTIMETERS.

Sesame Oil	0.100
Arachis Oil	Traces
Olive Oil	Traces
Cod Liver Oil	Traces
Raffinated Coconut Oil	Traces
Filtered Butter Fat	Traces
Butter	0.400
Klappa	0.750
Planta	0.475
Margarine	0.975
"Bran Butter"	1.125

From these figures two conclusions may be drawn: (1) The seat of the lipoids in butter is not the fat itself but the casein solution mixed with it. (2) The lipoids in butter represent only a part of the total lipoid content in milk (±0.075 per cent). The remaining part is responsible for the lipoid content in margarine and vegetable butter as far as they are made by means of skim milk only. The high figure for "margarine proper" may be due to the use of egg yolk besides skim milk as an emulsifying agent.

In order to enhance the lipoid content of "vegetable butter" the albumin-bearing seeds may be turned to account. Just as egg yolk, they contain lipoids in a chemical combination or an adsorption with albumins. So little are they inclined to give up their lipoids to solvents that a sesame oil which was heated with wheat bran at 100° C. afterwards proved even to have lost a great deal of its lipoids.

From this combination or adsorption the lipoids may be set free by treating the seed material with liquors that dissolve the albumins. The "steep liquor" of the corn starch factories, obtained by treating the corn with slightly acidulated water, is an example of such a solution.

To set free the lipoids of wheat bran the bran was treated with diluted lime-water during 24 hours. The liquor pressed off and separated from the subsiding starch was shaken with a molten mixture of raffinated coconut oil and arachis oil. After that a quantity of skim milk was added, amounting to one-fifth of the emulsion, and the mixture allowed to ripen. Then the fat was separated and worked to a butter-like product, which showed the high lipoid figure above (bran butter). The lipoid content may be increased by altering the proportion of bran and fat.

Another interesting point in the process described is that the liquor separated from the "bran butter" may be easily worked to a kind of cheese, in which a large part of the wheat albumins are made available for human food.

The process is in no wise restricted to the use of wheat bran. Maize, peanuts, almonds and many other albumin-bearing seeds and oil cakes await their testing as to the production of palatable food. In fact there is a variety which could never be attained by the dairying industry working with cows' milk only.

Sneek, Holland.

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[1] Reprinted from The Journal of Industrial and Engineering Chemistry, Vol. 8, No. 11.

Fats and Their Economical Use in the Home*

By A. D. Holmes and H. L. Lang
Scientific Assistants, Office of Home Economics

The appearance and physical properties of the common fats and oils used for food purposes are too well known to require much description here. Chemically considered, fats consist chiefly of glycerids of fatty acids. The fatty acids whose glycerids are most common in edible fats are oleic, linolic, palmitic, and stearic. One fat differs from another primarily in the proportions of these esters which it contains and in the presence or absence of small quantities of other substances, such as free fatty acids and characteristic flavoring and coloring bodies.

The melting point or hardness of any fat depends on the relative proportions of these acids present, and fats containing large amounts of combined oleic and linolic acids are soft or liquid, while those containing large amounts of palmitic or stearic acid are solid. This follows whether the respective acids are combined as triglycerids or as mixed glycerids.

The color of some of the crude fats and oils varies from light yellow to red, or even black, but the refining processes remove a great proportion of the color-giving bodies, and the pure fats and oils are a pale yellow or colorless when liquid, and white or creamy white when solid.

The flavors and odors of fats are probably due to the presence in them of small amounts of difficultly removable substances rather than to specific properties of the pure fats themselves, in view of the fact that flavors and odors become much less noticeable the more completely the fats are purified. The characteristic flavor of butter, for example, is due to the absorption by the fat of the substances formed in the fermentation of milk and cream by lactic acid and bacteria and to the presence of small particles of the curd. Similarly, the by-products, such as butyric acid, which are formed by the action of undesirable bacteria, may be absorbed by the fat and give rise to the undesirable flavor of butter of poor quality or that which has deteriorated. Musty flavors are doubtless due to the presence of the products of metabolism of molds which may be present in the fats. In the case of some fats, like those of beef and mutton, or the fish oils, it has apparently been impossible to remove entirely the flavor-giving substances by the ordinary methods of refining.

THE PLACE OF FATS IN THE DIET.

The chief value of fats in nutrition is that they furnish energy which the body requires to perform its work. The ideal diet should contain sufficient quanties of fat and carbohydrates to insure it the required amount of energy, as well as a sufficient quantity of protein to supply the necessary nitrogen for growth and repair of the body, also mineral matter for growth and other body needs, and vitamins or similar bodies required to render the diet adequate for maintenance. Since fats furnish 2¼ times as much energy, pound for pound, as do proteins and carbohydrates (1 pound of fat furnishing about 4,000 calories, and 1 pound of protein or carbohydate only about 1,800 calories), and since they are both wholesome and palatable, they are very commonly used to increase the energy value of the diet. Furthermore, they are especially useful as a source of energy where an excess of carbohydrates in the diet is to be avoided, as in cases of diabetes or certain forms of indigestion.

The consumption of some fat is apparently universal, although the amount eaten varies within rather wide limits. It is difficult to obtain any definite figures for the quantity of fat eaten by the average person, but in 1,300 dietary studies of families, carried out among different races and in different countries, it was found that the average quantity of fat eaten was about 4½ ounces per person per day, the variation recorded being from 1½ to 13 ounces per person per day.

While fats and carbohydrates may replace each other to a considerable extent, recent investigations indicate that some carbohydrate supplied by the food or formed in the body from protein is essential for the combustion of fats in the body. Experts in nutrition and dietetics, therefore, believe that neither one should be used to the exclusion of the other.

DIGESTIBILITY OF FATS.

While all fats yield approximately equal amounts of energy when burned outside of the body, the energy which the body actually derives from each is dependent upon its digestibility; that is, the proportion which the body retains. The digestibility of a number of the individual fats[1] has been determined, and the information at present available indicates that fats in general are very thoroughly digested; more so, indeed, than the animal or vegetable proteins and the starch occurring in the ordinary mixed diet. Such slight differences as have been observed in the digestibility of individual fats evidently correspond to differences in their melting points. Available evidence indicates that fats such as mutton fat, having a melting point higher than the body temperature, are less completely assimilated than those melting at a lower temperature, such as lard, butter, olive oil, and cottonseed oil. Also, it has been shown by feeding experiments with laboratory animals that animal and vegetable stearins (melting above body temperature) are only very slightly assimilated by the body when eaten alone, whereas, if mixed with palmitin and olein digestibility is increased because, no doubt, the mixture has a lower melting point than the stearin by itself.

SOURCES AND KINDS OF EDIBLE FATS.

Not many years ago the fats used in this country were obtained almost entirely from the two groups of farm animals, cattle and hogs. Butter and cream were the ordinary table fats, and it was the general custom for each family to obtain its own supply of lard, which was the chief cooking fat, from the pigs slaughtered on the farm. Beef and mutton fats, or tallows, as they were generally known, were used in cooking to some extent in the form of "dripping" obtained from cooking meats, but found a much wider use for candle and soap making. Chicken fat was also used in a limited way. As the population began to concentrate in cities and towns, the introduction of central slaughterhouses and rendering plants made it possible to obtain both meat and fat separately in such ways as met individual requirements, and home rendering of fats quite generally disappeared except in rural regions. The increasing population created a demand which soon exceeded the available supply obtained from slaughtered animals, and this made it necessary to seek additional sources of edible fats. Naturally, olive oil, used for food purposes in some parts of Europe and the Orient and less generally in the United States, suggested the possibility of the utilization of other vegetable fats, and as the methods of refining were improved cottonseed oil came to be very commonly used, and, to a less extent, coconut, peanut, and corn oils. At the present time there are also a number of vegetable fats on the market, some of which are simply refined and used alone or in admixture, while others have been treated by special processes designed to render them harder or otherwise changed in character.

BUTTER.

Butter is the most popular and widely used of all fats in the United States, it being estimated that from 17 to 18 pounds per capita are consumed yearly, most of it for table purposes. Its food value is due largely to the energy it furnishes, which is about 3,500 calories per pound. It consists of the fat of milk, some water, and a little curd and added salt Butter is of two kinds, salted and unsalted. Commercial butter contains approximately 82.5 per cent of fat, which consists chiefly of palmitin and olein with small amounts of myristin, butyrin, and other glycerids of the fatty acids. The color varies considerably with the nature of the food materials eaten by the cow; the yellow is deeper in summer when green food is eaten. It is a common practice to add vegetable coloring matter, especially during the winter months, to intensify the natural color. Since butter tends to deteriorate easily, care in its manufacture is necessary to secure a wholesome product with good keeping qualities. The milk from which the cream is separated should be free from disease-causing bacteria as well as from microoganisms which would produce undesirable flavors or odors in the butter. For this reason in many creameries the milk or cream is pasteurized to kill undesirable organisms, and the ripening of the cream is started and controlled by the addition of a pure culture of bacteria which produce the desired flavors. Care must also be taken in the handling and storage of butter to prevent it from becoming contaminated with disease-causing bacteria or from absorbing undesirable odors or flavors. Such precautions, necessary to secure a wholesome product, naturally add to the cost of butter, but obviously from the standpoint of health are well worth the higher price. Butter of inferior quality is frequently treated by a commercial process which removes the objectionable odor and taste and then marketed as renovated or "process" butter. As many housekeepers know, strong butter can be made more palatable by washing it repeatedly in clean, cold water and then resalting; if the final washing is done in milk a better flavor is obtained. The commercial process of renovating butter is somewhat similar to this domestic process. The butter is melted, and air is blown through it until the undesirable flavor due to volatile substances is carried away. The product is then emulsified with soured milk and worked like ordinary butter. Renovated butter sells for a lower price than fresh butter, and for this reason it is used quite extensively in cookery, and to some extent for table purposes. If the process is carefully carried out it is of good flavor. Naturally, the sale of renovated butter as fresh butter is prohibited by the Federal and State pure-food laws.

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*Prepared under the direction of C. F. Langworthy, Chief, Office of Home Economics, and published as Bul. No. 469, States Relations Service, U. S. Department of Agriculture.

[1] U. S. Dept. Agr. Bull. 310 (1915).

CREAM.

Cream, which contains from 18 to 40 per cent of fat, should be regarded as one of the available fats. It is generally used as a table fat, being served with cereals and fruits, as a constituent of ice cream, and plain or whipped with jellies or puddings. In rural regions, where the supply is large, both sweet and sour cream are commonly used for shortening, but to a less extent in cities and towns where cream is more expensive. Cream is very palatable to most persons, and for this reason it is often prescribed by physicians for people who require a diet rich in fats. A form of cream more common in England than here, and known as "Devonshire Clotted Cream," is prepared by heating to about 180° F. whole milk on which the cream has been allowed to rise, cooling the mass, and skimming off the cream. It has a light-yellow color and a characteristic nutty flavor, is much thicker than ordinary cream, and contains about 60 per cent of fat.

LARD.

Pork fat is one of the more widely used of the animal fats, being eaten in a variety of forms, such as bacon, ham, fresh and cured pork, and lard, which is used principally for culinary purposes. The best grade of lard, commonly known as leaf lard, is rendered from the fat which surrounds the kidneys of the animal, but commercial lard is often rendered from any or all of the fatty portions of the animal and could be more exactly termed pork fat. Since lard contains a relatively small amount of the harder constituents of fats, it has a moderately low melting point and so is easily handled in the preparation of doughs. This is a reason why some housekeepers prefer it to harder fats for shortening purposes, especially in cold weather. For some special shortening purposes lard may be too soft and require hardening by chilling before use. Pure lard should be white in color and practically free from taste or smell. Home-rendered lard may contain varying amounts of water, according to the mode of rendering, but that containing the smallest quantity has the best keeping qualities; the commercial product contains practically no water. Formerly lard was sometimes adulterated by the addition of different substances, but with more stringent regulations this has practically ceased, and the commercial product is generally wholesome and prepared under sanitary conditions from animals which have been inspected before slaughter.

BEEF FAT.

Beef fat contains a large amount of stearin and is therefore harder than either butter or lard. The hardness and other characteristics of beef fat, as well as other animal fats, vary somewhat according to the part of the body from which they are obtained; for example, brisket fat, from the breast of the animal, is softer than rendered suet, the fat surrounding the kidney. The hardness of beef fat, and its rather pronounced flavor, which is unpleasant to some people, have doubtless prevented its more extensive use for culinary purposes. Many attempts have been made to remove the flavor, but apparently no method has been discovered which gives results satisfactorily enough to warrant its use on a commercial scale. Finely chopped unrendered suet is quite often used for shortening in such dishes as suet puddings. Rendered beef fat, or tallow, as it is sometimes called, is used by many people for shortening purposes, being mixed with butter or some other fat to soften it. It is sometimes sold in the market for this purpose, and in many homes beef suet or small scraps of fat trimmed from roasts, etc., are rendered for use in shortening and frying. Rendered beef suet has no general use in this country as a table fat, but in Europe people with small incomes often eat so-called drippings on their bread in place of butter. These drippings are sometimes obtained from roasting or broiling beef, but in many cases are simply rendered suet.

MUTTON FAT.

Mutton fat, called also mutton tallow or suet, contains a relatively large amount of stearin and is, therefore, classed commercially as a hard fat. It is used in the manufacture of stearin for soap making, and small quantities of the more highly refined grades are used in the manufacture of toilet creams and other cosmetics. Edible mutton fat is now prepared in considerable quantities, the mutton tallow and mutton stearin being used as ingredients of lard substitutes and the mutton oil as an ingredient of the lower grades of oleomargarine. Mutton fat is eaten to some extent in most homes as a constituent of fat mutton or lamb and in gravies served with such meats. Mixed with softer fats it is occasionally used in the home for shortening and frying, but much less so than pork and beef fats. This, no doubt, has been due to the characteristic mutton flavor, which is unpleasant to many people, to the hardness of the fat, and in some degree to the smaller available supply.

OLEOMARGARINE.

A discussion of animal fats would not be complete without some mention of oleomargarine, called "margarin" in Europe. The term margarin was at first used to designate a mixture of fats, composed of such proportions of palmitin and stearin that it closely resembled margaric acid, for which it was often mistaken, and so it was given the name "margarin." Later, when soft beef fat, or oleo oil, became an important component of this mixture, it was called oleomargarine or oleo. The name does not at present, however, indicate the composition of the oleomargarine. The principal fats used in its manufacture in the United States are oleo oil, neutral lard (that is, a specially rendered lard), and cottonseed and other oils. All these ingredients must be pure and prepared with care in order that none of them shall have any marked taste or odor. These are mixed in such proportions as will give the final product a melting point very near that of butter. After being thoroughly mixed the fats are churned with a small quantity of milk and sometimes cream, the proportions of these used depending upon the quality of the product desired. In the preparation of high-grade eleomargarine varying quantities of butter are also added. The resulting product is then washed, salted, and worked as in ordinary butter-making processes. Owing to the ease with which a highly colored oleomargarine might be sold as butter, it is illegal to sell oleomargarine unless it is plainly labeled as such, and the practice of coloring it to imitate butter is discouraged by a heavy tax. Oleomargarine is not used as extensively in this country as in Europe, where it serves both for table and culinary purposes. If prepared from pure materials and under sanitary conditions, it is a wholesome fat, which, according to European investigators, is well assimilated. It has an energy value of about 3,500 calories per pound.

VEGETABLE FATS.

Vegetable fats are prepared on a commercial scale from oil-bearing seeds and fruits and must ordinarily be freed from disagreeable flavors and odors as well as from dirt, by-products, and harmful constituents. In general, the process involves cleaning the seeds or fruits and subjecting them to hydraulic pressure. Cold-pressed oils usually receive no further treatment. When the seeds or oily pulp are hot pressed, however, the raw oil is likely to contain free fatty acids and other organic compounds of a disagreeable nature which make refining necessary. The refining process is adapted to the properties of the oil in question.

OLIVE OIL.

Olive oil is obtained by subjecting the ripe olives to pressure. The best grade, known as virgin oil, is obtained from perfect olives of the proper degree of ripeness. Lower grades may be obtained either by crushing and pressing an inferior quality of olives or by a second pressing of the residue from the first pressing of the better grades of fruit. The only refining or purification of the better grades of oil necessary is filtration to remove foreign matter. In the United States olive oil is used almost exclusively for table purposes, being a very common salad oil. In localties where it is produced, especially in southern Europe, it is used for cooking as well as for table purposes, owing to the larger and more readily available supply (especially of the cheaper grades) and to the relatively limitaed supply of animal fat in such regions.

COTTONSEED OIL.

Cottonseed oil in its crude form is obtained as a ruby or dark-red oil by subjecting the seeds of the cotton plant to great pressure. This crude oil was at first used for soap making and other industrial purposes, but with the increased demand for culinary fats improved methods of refining the crude oil, such as treating it with caustic alkali, fuller's earth, distillation with steam, etc., were developed. These serve to modify greatly the color, odor, and taste, and the best grade of table oil has a light-yellow color and a bland flavor. The refined oil was first utilized in the preparation of various lard substitutes by mixing with it hard animal fats to produce a substance having a consistency similar to lard. Other methods have been developed, and a wide variety of cooking fats prepared from cottonseed oil are now on the market. More recently salad oils have been prepared which are wholesome and palatable and are being used in increasing quantities for table purposes.

PEANUT OIL.

Peanut oil is not used to any extent for culinary purposes in this country, but some is imported for use as a salad oil. In Europe, where it is obtainable in relatively large quantities, it is used quite extensively both as a table oil and for cooking. When prepared by the cold-press method the characteristic peanut flavor is not noticeable and the product is bland and palatable. In the past the peanut oil produced in this country has been used in the crude state for industrial purposes, but an attempt is being made to develop the peanut-oil industry in this country and to encourage the more extensive use of the refined oil, which is now more expensive than cottonseed oil, but less expensive than olive oil of similar grade.

COCONUT OIL.

Coconut oil is prepared by pressing the dried meat of the coconut, which is known in the trade as copra. The crude oil is used for cooking purposes in tropical countries where the oil is prepared. In this condition the fat melts at about 70° F. and is a liquid in summer or in warm rooms during the winter. Refined coconut fat has little marked taste or odor if fresh and carefully prepared, and when solid is white in color. It has only recently come into use for culinary purposes but bids fair to become an important cooking fat. There are a number of coconut-oil products on the market, but these are not much used for home cooking. They are extensively used in bakeries and similar establishments, one reason being that they can be obtained with a considerable range of hardness, so that they are useful for many special purposes. For instance, one of the coconut fats is combined with sugar for use as a filling for some sweet crackers.

CORN OIL.

Corn oil is prepared from the germ of the corn which is obtained as a by-product in the manufacture of cornstarch and glucose. The germs are ground and subjected to pressure which removes the oil. Some studies have been made of the use of corn oil for shortening purposes. Pastry made with mixtures of lard and corn oil in amounts not exceeding 10 per cent of the latter gave results identical with those in which lard alone was used.[2] When properly refined, corn oil is a wholesome product and is marketed to some extent as a table oil. Large quantities of the crude oil are used for industrial purposes.

HARDENED VEGETABLE FATS.

Hardened vegetable oils, technically known as hydrogenated oils, which have much the same consistency as lard or butter, have been put on the market within recent years. They are commercial possibilities owing to the fact that as a result of a long series of laboratory experiments processes have been discovered by which oils may be transformed into a product of any desired hardness by chemically adding hydrogen to them. This reaction takes place, for instance, when finely divided nickel, hydrogen, and the oil to be hardened are intimately mixed under proper conditions. The nickel does not enter into the composition of the hardened fat, but is removed and used repeatedly in the preparation of other batches. The hardened oils are generally white in color, have no appreciable odor or taste, and are less likely to become rancid than the original oil. A number of these fats, marketed under a variety of trade names, have proved popular and appear to be of quite wide application. This hardening process may also be of special value in the future utilization of some oils like the fish oils, which, because of objectionable flavors and odors, are not entirely suited for edible purposes in their natural state.

THE SELECTION OF EDIBLE FATS.

In the selection of edible fats the principal considerations should be the purpose for which the fat is to be used, quality, price, and individual preference, since the energy which the body derives from different fats is about the same, and all are regarded as wholesome when of good quality. Custom, which influences to a considerable extent the choice of all foods, can, therefore, be subordinated to the more essential consideration of economy.

When purchasing fats for table use it should be remembered that they influence the wholesomeness of the foods with which they are served as well as the energy value and cost. The price of table fats depends largely upon their flavor and to a less extent on color, and in selecting them each housekeeper must decide how much she can afford to pay for these properties, since all the edible fats have practically the same energy value.

Fats used for shortening influence the appearance, flavor, texture, composition, keeping quality, and cost of the foods in which they are incorporated. In selecting shortening fats flavor and odor are to be considered, but attractive appearance and color are of less importance, since in cooking these are usually masked. Other qualities being equal, those culinary fats are more economical and desirable which possess the best keeping quality; that is, the least tendency to become rancid.

Fats used as a medium for cooking should be carefully selected, since they influence the flavor, appearance, and texture of the foods cooked in them, as is evident when one recalls the bad flavor imparted to fried foods by burned or rancid fat. Preference should be given to a fat which does not scorch too readily at the temperature most commonly used for frying. Experiments in the laboratory of the Office of Home Economics indicate that butter and lard scorch at a lower temperature than beef or mutton fats and cottonseed, peanut, or coconut oils. For this reason, therefore, the latter fats are preferable for deep frying, which requires high temperature.

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[2] Annual Report Ohio Dairy and Food Commissioner, 21 (1906), pp. 18-23.

Prejudice often exerts an influence on the selection of fats as well as other food materials, and these prejudices are often curious. For example, some persons who think that lard is not only indigestible, but also unwholesome, nevertheless enjoy bacon, which, of course, supplies pork fat in a different form. Such prejudices have little or no basis of fact and should not exert too much influence on the selection of any food material.

ECONOMY IN THE USE OF FATS.

Economy of fats in the home may be secured by intellingent selection, economical use, and by the prevention of unnecessary waste. For intelligent selection, which means choosing the fat best suited for the purpose in question, a knowledge of the properties and prices of the different fats on the market is necessary. It should be remembered that the energy value of all the pure fats is practically the same, and the housekeeper must determine how much she can afford to pay for particuar flavors or appearance, on which the difference in price largely depends. To secure economy fats should be used primarily for the purposes to which they are best adapted, and the extravagant use of both table and cooking fats should be avoided. To prevent unnecessary waste fats should be carefully handled and stored so that none need be discarded through spoilage. Furthermore, all scraps of fat which accumulate in the home should be saved and used for culinary purposes wherever possible, thus lessening the amount of money expended for cooking fats. It should always be borne in mind that while an economical use of fat is to be desired, stinting is to be avoided. In determining how far economy in the use of fats is to be practiced one should bear in mind that true economy is possible only where the value of the time and energy involved in the saving or utilizing of an article is less than the value of the articles saved.

Statistics Concerning Margarine.

The following digest of the production of margarine throughout the world, as of January, 1915, has been compiled by one of the leading manufacturers of that product:

	Our Previous Figure Lbs.	U. S. Dept. of Commerce Lbs.
Germany (158 factories)........ Annual production estimated by a margarine paper, "*Der Landhasthof*," 5/27/14. Consumption 8 lbs. per capita.	500,000,000	550,000,000
England (10 to 12 factories)..... Annual sales estimated on information of various manufacturers, brokers, etc., that one-half of the English consumption was imported and the other half made in England, 80% of it by the Monsted Co., who are said to make 150,000,000 lbs. yearly. Consumption 8½ lbs. per capita. *Note: In connection with the foregoing figures for Great Britain it is interesting to note that during the war there has been a very considerable increase in the amount of margarine imported into that country. From January 1st to August 12th, 1916, the figure was 1,638,703 cwts. as compared with 1,127,584 cwts. for the same period in 1915, an increase of 57,500,800 pounds, or 45%.*	375,000,000	220,000,000
Holland (10 factories)........... Annual production. Estimate made basis 85% English export, 15% local consumption. Consumption 20 lbs. per capita.	220,000,000	286,000,000
United States (20 mfgrs.)........ Estimated production annually, 1915-1916. Consumption 1⅓ lbs. per capita.	152,000,000	152,000,000
Denmark (49 factories).......... Annual production. Danish Government Report 1915. Consumption 44 lbs. per capita.	123,200,000	110,000,000
France (12 factories)............ Annual production estimated	40,000,000	40,000,000
Belgium (10 factories)........... Annual production estimated on government figures for four months of 1914.	24,000,000	24,000,000
Newfoundland—Estimated by Minister of Finance, 1913........	3,600,000	3,600,000
Norway—Production 1912 (less export), 25,715 metric tons, as per Bureau of For. & Dom. Commerce Bulletin by E. W. Thompson, or 33½ lbs. per capita	56,500,000	66,000,000
Sweden—Production 1913 est. metric tons, as shown, or 7 lbs. per capita...............	44,000,000	44,000,000
Austria-Hungary—No government record but estimated consumption yearly..................................		33,000,000
Total		1,505,100,000

MARGARINE IN THE UNITED STATES.

Up to and including 1902, margarine was sold in the United States under the old 2 cents per pound flat tax, applicable to colored and uncolored alike. Since that time there has been a tax of a ¼ cent per pound on uncolored margarine and 10 cents per pound on margarine artificially colored.

The following figures represent production of both classes of margarine in pounds:

1901	104,995,979
1902	127,037,362
1903	72,584,951
1904	50,309,405
1905	51,888,764
1906	55,540,631
1907	71,136,736
1908	81,530,566
1909	92,013,978
1910	141,440,485
1911	121,359,071
1912	128,269,651
1913	144,934,485
1914	144,302,750
1915	145,292,180
1916	152,183,085

Canadian Dairymen Oppose Margarine.

Grocers in Canada are interested in the campaign for the removal of the restriction which has always prevented the manufacture and sale of oleomargarine in that country. With butter scarce and high, there is a strong sentiment favorable to allowing the substitute to be made, but it appears to have struck what the *Journal of Commerce* terms its logical obstacles in the form of a protest from the dairymen and farmers of the Dominion.

The Waterloo County Board of Agriculture at a recent meeting in Kitchener, Ont., placed itself emphatically on record as opposed to the removal of the prohibition against the sale of margarine in Canada. A resolution was passed at the meeting requesting the Government not to allow the importation of this article. The board, in place of the introduction of margarine to reduce the price of butter, suggests in its resolution to the Government that, if necessary to bring butter to a more normal price, it should take over the creameries in Canada.

Pasteurization

By Dr. Adolph Gehrmann
of the Columbus Laboratories of Chicago

The organic source of food materials gives nature opportunity to destroy them by drying, disintegration and decomposition. Of these, decomposition is most active. Louis Pasteur proved conclusively that bacteria were the cause of decomposition. His researches were first conducted to bring science to bear on the great question of spontaneous generation. He was strongly opposed by other scientists who believed that life could start from dead substance. This theory was completely exploded by Pasteur's interesting experiments. He found that by boiling broth or other putrescible liquids they could be preserved if protected from dirty air, and that it was not the air itself but the floating particles in it that carried bacteria which induced the decomposition. When the air was clean, as it was high up in the Alps after a snow storm, or when it had been heated and all the suspended particles burnt, it could be passed over broth without causing decay. In the course of these experiments it was found by Pasteur that a single boiling would in some cases suffice to preserve broth, but that in other cases two or three boilings were necessary to preserve it. The cause of this variation was found in the fact that some bacteria developed a more resistant stage of life in that they formed spores. These spores resist all destructive action much better than the growing bacteria. We now call the spore a resting state and the growing bacteria a vegetative state.

These resting and vegetative states are analogous to seeds and growing plants. One preserves life over the winter and during drought, while the other is the growing active plant. When mixed bacteria are present in broth, milk, wort, must or on meat or vegetables, some of the bacteria are very likely to be in this spore state and their destruction by heat is much more difficult.

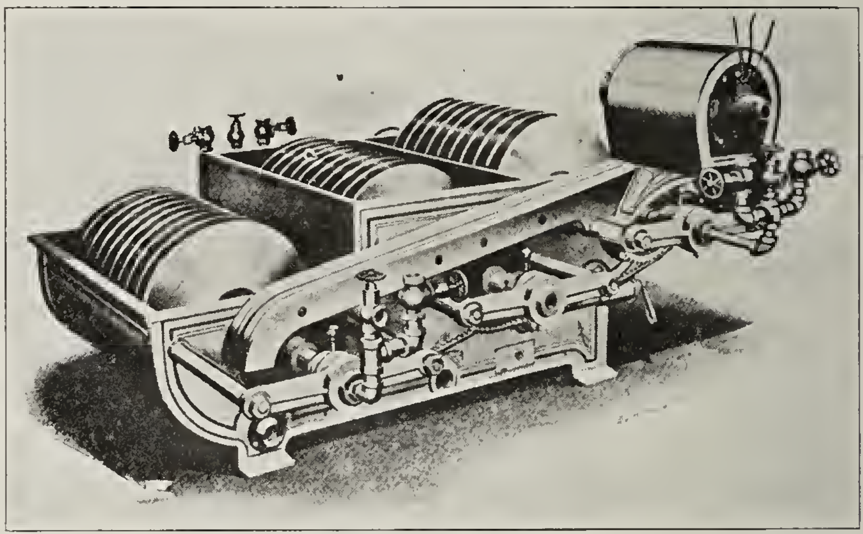
Some very active decomposition bacilli, such as the potato bacillus, have spores that will still live and grow even after having been boiled for several hours, but as soon as they sprout and are in the vegetative state, a few minutes boiling will kill the growing bacteria. All of these demonstrations lead to what we call fractional sterilization, or a killing of decomposition bacteria by several short period heatings far enough apart to allow the spores to sprout into vegetative cells that can be easily killed.

Another side of fractional sterilization is that some materials or mixtures can be preserved by this method which would be injured by too long boiling and their properties changed. This is true of gelatins, albumens and sugars. In order to avoid damaging the material to be preserved, and at the same time accomplish preservation, fractional sterilization is practiced. Another advantage is its use in preserving for a short time. The vegetative bacteria begin their destructive activities at once when they get into suitable food material while spores are resting and do not cause any change until they sprout. This sprouting of spores requires some time, from several hours to several days, according to whether or not the temperature is suitable. If milk, for instance, that contains all kinds of bacteria, is heated a few minutes and the growing bacteria killed, the spores can be prevented from sprouting by cold, and the milk thus preserved for several days.

The method of killing part of the bacteria for short preservation has come to be called pasteurization from the name of its discoverer.

Pasteurization is more used as a means of preserving milk and beer than any other materials. All of the studies of the bacteriology of milk show that the really dangerous bacteria in it are in a vegetative state, or do not form spores. A short heating will therefore kill the undesirable bacteria and, if carefully conducted, will not damage the milk.

The problem of preserving milk becomes complicated when we know the intricate composition of this valuable food. It contains everything necessary to support life and is very easily decomposed or digested. If its delicate constituents are changed by boiling, it is not as easily digested by the child and nutrition is unbalanced. The practical application to milk must therefore bring about a killing of bacteria as far as possible, and yet not damage the milk or change its taste to any extent. The degree and the length of time of heating must be very carefully regulated to that temperature which kills bacteria and not above that which changes the albumens of the milk. This temperature range is between 55° and 60° C. or 130° to 140° F. If the temperature goes much above this for any length of time, some of the albumens or the ferments of the milk may be changed. Practically, these principles are the guides in applying pasteurization. Two methods are used, one called the holding method in which the heating is held at the named temperature for a few minutes —15, 20, 30—with or without agitation, according to the device used, and the other is called the flash method in which the heat is raised momentarily to a higher temperature and is as quickly reduced. This latter method is not always uniform in action because some particles of milk might burn when hot pipes or plates are used over which the milk is allowed to run. We have also pasteurization in the bottle and in bulk. In the former the milk is protected in a closed bottle, but cannot be easily agitated to get the heat evenly distributed. In the bulk method there is the disadvantage that dust and bacteria from the air at once fall into the milk and its protection from contamination is very difficult.


Photograph from McIntosh Stereopticon Co.

FLASH METHOD PASTEURIZER.

The principles of milk pasteurization have not changed to any extent for half a century, but the number of devices discovered for applying it is constantly increasing. In 1893, at the World's Fair, a division of the dairy exhibit was assigned to pasteurizing machinery. Now, an entire exposition could be made of the machinery and allied activities connected with pasteurization, extending from the single bottle in the nursery to the supply amounting to thousands of bottles for some large city. As a health protecting system, pasteurization of milk alone is of inestimable value. As has been intimated, practically all of the dangerous bacteria of milk are without spores and can be killed by pasteurization. From the cow's udder there are the pus bacteria and streptococci and tubercle bacilli, and these are destroyed, and those from dirt, as typhoid, cholera and dysentery bacteria, are also killed. Truly, a wonderfully protecting method when conscientiously applied.

The American Society of Milling and Baking Technology

The sixth annual meeting of the American Society of Milling and Baking Technology was held at the Willard Hotel, Washingon, D. C., on November 22, 1916.

The following named persons were in attendance: President R. W. Thatcher, University Farm, St. Paul; B. R. Jacobs, I. K. Phelps, D. H. Grant, H. L. Wessling, C. H. Bailey, H. S. Paine and J. A. LeClerc of the Bureau of Chemistry, F A. McDermott, Corby Co., Washington, D. C.; T. J. Bryan, Calumet Baking Powder Co., J. R. Chittick, K. C. Baking Powder Co., H. E. Barstow, Industrial Appliance Co., Chicago; R. L. Lee, Fleischmann Co., R. M. Allen, Ward Baking Co., Fritz Hildebrand, Shults Bread Co., R. M. French, French-Pancoast Lab., New York City; Prof. Clark, Mich. Agr. Coll., Lansing, Mich.; Mr. Miller, Terre Haute, Ind.; Robert Dewar, Shane Bros. & Wilson, Philadelphia; C. N. Ageton, Central Exp. Sta., Cuba; F. W. Emmons, Washburn-Crosby Co., Minneapolis; David Chidlow, baking and milling consulting expert, Ridgefield, Conn.

It was decided to hold the next meeting of the Association next year at the time of the Association of Official Agricultural Chemists.

A letter from Mr. Clissold of the Bakers' Helper was read suggesting the advisability of having a new class of members, inactive but contributing. The Executive Committee made no decision in this regard at this time. It was decided that the Executive Committee consider the matter of providing such membership by change in the constitution. Mr. Jacobs suggested the matter of publishing the proceedings. This matter was referred to the Executive Committee.

The election of officers resulted in the re-election of the present incumbents: President, R. W. Thatcher; Vice-President, B. R. Jacobs; Secretary-Treasurer, J. A. LeClerc. These officers appointed F. W. Emmons and C. H. Bailey as extra members of the Executive Committee. The Executive Committee appointed the following referees and associate referees for next year: Milling, Miss L. Dunton and F. J. Birchard; Baking, Miss H. L. Wessling and Miss Purdy; Analytical Methods, D. H. Grant and F. W. Emmons; Baking Powder Experiments, I. K. Phelps and Miss Mosher.

President R. W. Thatcher's address dealt chiefly with grain standardization. President Thatcher said that the rapidly increasing importance of commercial grain standardization emphasizes the necessity for a better knowledge of correct fundamental principles upon which to base grain grades. Many of the present tests came historically from purely empirical technical tests and have never been shown to have any definite connection with real milling values. Some of the fundamental questions in market grading which should be studied are:

(a) The mechanical operation of the details of State or Federal grain inspection.

(b) The relation of present grain grades to real food or milling value.

(c) The relation of grades to market value, or the "spread" in prices between grades, and their relation to real milling value.

(d) The relation of dockage to grades and to intrinsic value of the grain.

(e) Country grading as compared with terminal grading.

(f) The mixing of varieties and of grades and its relation to milling and market values.

Among the many interesting reports either delivered or read were the following:

Report of Referee on Milling.

Miss Dunton, the Referee on Milling, was absent. Her report was read and discussed by Mr. Jacobs. Eight members took part in the collaborative tests on milling, although samples had been furnished to eleven members in all. With the exception of one or two collaborators the work was found to be more uniform than that of the previous year.

The plan of the experiment was to temper the wheat for four hours to a moisture content of 14.5% and to mill this wheat on a 45, 60 and 66 per cent flour basis, and to determine the moisture and ash in the products of milling. The percentage of ash in the flour was found to increase with the increase in the percentage of flour milled, viz., 0.384% ash being found for the 45% flour and 0.418% for the 60% flour and 0.443% for the 66% flour.

Another experiment was to determine the effect of tempering (a) for four hours at 14.5% moisture, (b) for 16 hours, at 12.5% moisture with a further addition of 2% moisture for two hours and (c) for 16 hours at 14.5% moisture. The average of all the determinations showed 0.435% ash for wheat tempered four hours, 0.451% when tempered 18 hours, 0.443% when tempered 16 hours.

Baking Powder.

In the absence of a report from the Referee on Baking Powders, Mr. Chittick read a paper on the general subject of "Baking Powders," explaining the six kinds of baking powder in use on the market, together with the proportion necessary to produce 14% of leavening gas, namely: (1) the tartaric acid, (2) cream of tartar, (3) soda and aluminum sulphate, (4) mono calcium phosphate, (5) mono sodium phosphate, (6) mono calcium phosphate plus soda and aluminum sulphate. It was shown that the mono calcium phosphate plus the sodium bicarbonate was generally used in self-rising flour. As a general rule the tartaric acid baking powders are the most rapid, next are the phosphate, then the cream of tartars and the slowest of all the sodium aluminum sulphates. The reactions were also illustrated to show the products formed, and amounts, during the mixing and baking of the dough. The method of bringing together this data in a form for easy direct comparison was clear and instructive.

Bread Flour Standards of the Immediate Future.

Mr. David Chidlow read a paper upon the subject of which the following is an abstract:

There has been a steady decline in the protein and gluten values of standard bread making flours produced under the type groups of Minneapolis patent flour, from 1894 up to the present time.

In the middle 90's, Northwestern wheat flours of patent flour grade, contained over 13% of protein and dry gluten, with the ash practically constant at 0.43%. By 1904 the gluten had receded to 11% for the same group of flours; and today, and for some time past, the percentage of protein and dry gluten has been between 9 and 10%. Non-rotation of crops is partly responsible for the lower gluten, and lands becoming wheat sick—as some of the forty years cropping of alfalfa lands in Nevada have become alfalfa sick—together with a Western movement of wheat production, and introduction of wheats more profitable to the grower have been major elements in causing these radical changes. There is evidence that the next five years will witness further changes that will enable us to closely estimate standards for flour.

Prof. Chidlow further brought out the fact that dry land wheat which contains more gluten than wheat grown under humid conditions should be sold at a premium. He showed that sometimes the yellow berry wheat has been as low as 17 cents less per bushel than the flinty. In the discussion of this paper it was brought out that the use of alfalfa in Idaho experiments increased the protein content of wheat 5 to 6 per cent. This bore out the contention made by Prof. Chidlow that continuous cropping of wheat tended to produce wheat of low protein content.

Essentials in the Commercial Laboratory Work on Flour.

An abstract of Mr. Robert Dewar's paper upon this subject is as follows:

The purpose of this paper was to point out the important things to be reviewed by the laboratory operator in the daily conduct of business, to relate essentials to each other, and to use the information thus obtained as a correct basis of interpretation.

Things as they are, rather than why they should be so, engage the attention of the operator in a private commercial laboratory.

The paper enumerated the essential tests as follows:

MOISTURE.—An estimation of physical condition regarding natural moisture and amount of dry matter.

ABSORPTION.—A stability test, and a contributing factor in bread yield.

GLUTEN.—Qualitative tests on gluten can only be secured by washing and weighing both wet and dry gluten. The character of gluten cannot be sufficiently determined by chemical test.

COLOR.—Appearance expressed in terms of color, will always be a factor in laboratory work. Color is one of the most complex and imperfect yet essential tests.

ASH.—The most reliable indicator of purity. Ash is inert matter.

BAKING.—The final test. It is not complete in itself, but must be associated with other tests necessary to determine the makeup of a well-balanced flour.

Mr. Dewar further called attention to the need of an instrument to determine the color of flour. He distinguishes the color of flour as white, cream, creamy white, yellow, cream yellow, gray, and he mounts each type of flour on a separate board. The ash factor is the most constant, as well as the best indicator of purity, but not of quality. Pastry flour would have the lowest amount of ash and macaroni flour the highest. He found no relation between the ash and the gluten. The shape and structure of the berry affected the ash content. Flour produced from wheat weighing 60 pounds per bushel would have a lower ash content than flour produced from the same kind of wheat weighing 58 pounds per bushel. In the discussion of this paper the author stated that he obtained good results by ashing as low as one gram of flour. In this connection it was brought out that the A. O. A. C. is recommending 5 g. of flour for ashing, and this amount is generally recognized as the best amount to use. Mr. French called attention to the fact that time was an important factor for commercial laboratories, and therefore the ash determination should be finished as soon as possible, using a rather high heat for that purpose.

Some Mill Chemistry Problems.

Prof. John C. Summers sent a paper on this subject, the gist of which was as follows:

Color of Flour.—The color of flour, as determined by the crude methods now in use, is very unsatisfactory. The ideal color of flour is a slight cream, and flours with branny specks, bluish gray shades, yellow colors, or dead white, should be graded lower in color.

Chlorine Bleaching.—Chlorine bleaching can be determined very quickly and in a very simple manner by those even without chemical training. Thirty grams of flour mixed with 200 cc. of benzine and shaken will leave a solution of yellow color if unbleached, and colorless if bleached. If this is filtered, the filtrate brought to dryness and some of the fat remaining in the container taken on a copper wire and placed in a gas flame, a distinct greenish color will appear if bleached, and the flame will be colorless if unbleached.

Ash.—Best method for determining ash is to use calcium acetate method and ignite in an electric furnace at about 1500° F. for 2½ hours. Blank determinations on calcium acetate solution should be run with each determination.

Gluten.—While protein determination is most accurate in regard to quantity of nitrogenous material, still the quality of gluten is of as much value as quantity, and very often the gluten will be more or less soluble and give lower percentage than the protein determination. It is the quantity and quality of hand-washed gluten that is of value to bakers and not the total protein. In the discussion it was decided that it was misleading to report protein as gluten.

J. A. LeClerc, Secretary.

Chemist's Secrecy Contract Discussed.

Whether or not a so-called "secrecy contract" is valid is a point concerning which there are always many opinions. It is a point of interest to manufacturers and chemists, alike. The Chicago section of the American Chemical Society was recently interrogated by a chemist as to the validity of a contract which he had signed with a former employer. It was a fairly explicit contract stipulating that if the chemist in question had any knowledge of any process or chemical formula claimed by the employer to be secret it was obtained while in the service of the employer, that it was divulged in confidence and as a secret process or formula, that it would be divulged to no one nor made use of in any way at any time in the future and, finally, that the agreement as to secrecy was a part of the contract of employment and would continue in effect after the chemist's employment ceased.

The chemist resigned and accepted employment with a competitive manufacturer. Whereupon the former employer threatened to restrain the chemist from making use of knowledge gained while in his employ, claiming that the secrecy contract was still binding. The question was laid before Messrs. Dyrenforth, Lee, Chritton and Wiles of Chicago, a leading firm of patent law attorneys. Their opinion is published in a recent issue of *The Chicago Chemical Bulletin*, and while it is too lengthy to admit of full quotation the following summary is of interest.

"Generally speaking, where a trade secret, actually used in the business of the employer by the employe, knowledge of which has been obtained by virtue of the employment (and not known to the employe before the period of his employment), has been kept secret by the employer, so that it is known only to those persons who necessarily make use of it in the business, the employe will be enjoined from making use of such a trade secret to the detriment of the employer, and this irrespective of the question as to whether or not there is an express contract. But it will not be sufficient for the employer simply to claim that the process or thing sought to be protected is a secret—it must be a secret in fact and in law.

"Care should be exercised by the employe when he is asked to sign a contract which restricts his right to use information, knowledge or skill acquired by him during the course of his employment, or which seeks to prevent the disclosure by him of any such information, knowledge or skill. An employe might very easily, by inadvertence, enter into a contract, especially if his employment is along chemical lines, which would seriously handicap him in obtaining desirable situations later. The advisability of observing this caution is obvious, because the courts generally show a disposition to endeavor to compel a man to abide by any express contract he has made, unless it is without consideration or is in violation of public policy, and employment contracts do not usually come in either of those two classes.

"Perhaps it ought to be said that each case depends upon the peculiar facts there involved, and what is above stated is meant to cover only the general rules. It ought to be further stated that both the employer and the employe, in entering into contractual relations respecting the employment, whether under a written or verbal contract or understanding, should be mutually fair, and it rarely happens that the employe seeks to take unfair advantage of what he has learned during the course of his employment."

Tilefish, Good Food and Cheap.

During December, 20 vessels were engaged in the tilefish fishery out of New York and Boston, according to reports received by the United States Bureau of Fisheries and published in *Commerce Reports*. Two vessels landed 4 fares apiece in New York and 7 other vessels landed 2 or 3 fares each, the total number of trips being 33 in New York and 3 in Boston. In the first half of the month the prices received by the vessels were 4, 4½ and 5 cents a pound, but during the latter part of the month the prices rose to 6, 7 and 8 cents. The aggregate quantity of fish brought in and sold was 648,260 pounds, valued at $33,046.

With the Wholesale Grocers

Pure Food and Legislative Committee Conference.

A joint conference of the pure food and legislative committee of the American Specialty Manufacturers' Association and the National Wholesale Grocers' Association met in the office of the latter Association on the 9th of this month. Those representing the American Specialty Manufacturers' Association were Messrs. Sweet, Lipe, McCormick, Winslow, Monagle, Runkel, Eckman, Dunn and Thurhorst, while those representing the National Wholesale Grocers' Association were Messrs. Whitmarsh, Drake, Rowe, Bursk, Ackerly, Fiske and Beckmann.

The purpose of the conference was to consider the advisability of uniformity in state and Federal laws, there being now about forty-two state legislatures in session, where bills will be introduced in which both the manufacturer and the wholesale grocer will be interested and concerned, and in this connection the state of Massachusetts was considered with a view to amending the present law in that state, in line with the Federal law.

The representatives of both associations expressed their approval of proper and reasonable sanitary laws in all states. Other important matters were considered with the understanding that the two associations would use their efforts in the enactment of laws which would be just to all concerned.

Discrimination in Trade an Unfair Method of Competition.

In a recent conference with the Federal Trade Commission in Washington, Mr. Oscar B. McGlasson, accompanied by Senator J. H. Blackwell, Messrs. O. J. Moore, John S. Brady, O. C. Mattern and other association members, pointed out that notwithstanding the Sherman Anti-Trust Law of 1890 and the more recent Federal Trade Commission Act and the Clayton Anti-Trust Law, great monopolies are growing up in the grocery trade. Mr. McGlasson pointed out that to discrimination and unfair methods of competition are to be attributed the success of these monopolies. The situation is clearly covered by the following statement which was brought before the Federal Trade Commission:

> "It is an unfair method of competition in commerce for a manufacturer, who relies upon wholesale channels for the distribution of a large part of his output, to discriminate against his said wholesale customers, and also against that large body of retailers to whom such manufacturer does not sell by selling a part of his output direct to certain retailers, thus enabling such favored retailers to narrow and restrict the competitive field by driving out of business those merchants who suffer such discrimination. Such course on the part of a manufacturer tends to monopoly and restraint of trade and is an unfair method of competition in commerce; the manufacturer should confine his sales, in his own discretion, either to the wholesale or the retail channel, or sell direct to the consumer."

Arbitration Awards.

For some time past it has been the custom of many members of the National Wholesale Grocers' Association to leave to arbitration the decision of controverted matters. Among recent awards the following are of interest to the general public, as an indication of how this sort of settlement works out:

PRO-RATA DELIVERY.

One brokerage company of St. Louis bought of a brokerage company of Maryland 1,000 cases No. 2 standard tomatoes with packer's label. The seller delivered only 750 cases of tomatoes on the contract, claiming to have received only that number on account of short pack, claiming also that as they were acting only as brokers they should not be held responsible for the failure of their principal to deliver in full, while the buyer claimed that as there was no shortage of tomatoes in the east they should receive the full quota. The sellers having no more tomatoes to deliver, the arbitrators unanimously agreed to allow the buyer 30 cents per dozen on the unfilled portion (250 cases of tomatoes) of the contract.

LIQUIDATED DAMAGES.

A California wholesale grocer bought of a California packer 1,000 cases of No. 2½ solid pack tomatoes. The wholesale grocer paid the invoice value of 1,000 cases of tomatoes upon being tendered warehouse receipt, but was unable to secure good and proper delivery of the goods for the purpose for which purchase was made, and was obliged to purchase other goods at a higher price. It was decided that the packer of the tomatoes should pay the buyer a sum covering the invoice submitted by the wholesale grocer to the packer for the amount paid out by them; and that interest at 6% per annum should be paid by the packer to the wholesale grocer for the amount received by him from the wholesale grocer in payment of said 1,000 cases of tomatoes, from date of payment to date of adjustment.

American Metric Association Organized.

At a meeting of the Social and Economic Science Section of the American Association for the Advancement of Science held in New York during the week of December 26, 1916, there was started the first regularly organized movement to secure the adoption of the metric system in this country. The following officers and executive committee were selected:

OFFICERS.

President—George F. Kunz, 405 Fifth avenue, New York City.

First Vice-President—Wm. Jay Schieffelin, 170 William street, New York City.

Second Vice-President—E. P. Albrecht, The Bourse, Philadelphia, Pa.

Third Vice-President—O. E. Stanley, Portland, Ore.

Treasurer—Arthur P. Williams, 56 Hudson street, New York City.

Secretary—Howard Richards, Jr., 156 Fifth avenue, New York City.

EXECUTIVE COMMITTEE.

H. V. Arny, 115 West 68th street, New York City.

Fred R. Drake, Easton, Pa.

A. E. Kennelly, Massachusetts Institute of Technology, Cambridge, Masss.

S. W. Stratton, Bureau of Standards, Washington, D. C.

W. P. Wilson, Philadelphia Commercial Museum, Philadelphia, Pa.

Mr. Fred R. Drake, chairman of the pure food and legislative committee of the National Wholesale Grocers' Association, has had much to do with bringing about this eminently sensible move. As he pointed out during the course of his address at the meeting, the National Wholesale Grocers' Association was the first body of national import to advocate the use of metric weights and measures, and to advise their compulsory adoption for all purposes. The attitude of the Association has for some time been that "the metric system is a better system than the one we have, and knowing there is something better, we want to see its adoption made compulsory by Congressional enactment at just the earliest moment commensurate with the demands of the electorate educated to its real value."

With Counsel.

Under this heading are given the gist of legal opinions given by counsel for the National Wholesale Grocers' Association. Among those recently published of interest to those in the food industry are the following:

VANILLIN, COUMARIN AND VANILLA.

Q. Under the Federal Pure Food Law and the laws of Iowa and Illinois is it necessary to declare percentages of ingredients on the label of a product consisting of vanillin, coumarin and vanilla?

A. No. A few states require the proportion of alcohol used to be declared upon the label, but there is no such requirement under the laws above mentioned. Presence of coloring matter must be prominently declared on the label, and although percentages need not be stated, the ingredients vanillin, coumarin and vanilla should appear on the label in the order of their proportion in the compound.

CRAB MEAT—LIABILITY FOR SPOILAGE.

Q. Crab meat, within two or three months after purchase, went bad, although it was carefully sampled upon arrival, and was of good merchantable quality. Purchaser has a guaranty that all sales will comply with the National Pure Food Law. Should not goods in tinned cans stand up a reasonable time, that is to say, eight or twelve months from time of receipt by purchaser? There must have been a latent defect in the packing which caused them to go bad. Should this case be arbitrated?

A. You may properly rely upon the usual guaranty under the United States Food and Drugs Act, June 30, 1906, during the period that goods of the kind in question (crab meat) would remain wholesome and of merchantable quality, if they had been packed under the best approved methods known at the time, and if they had been handled by you after purchase, and by the retailer, in a reasonably careful manner, considering the character of the goods. It must be borne in mind that the ordinary guaranty under the United States Food and Drugs Act is merely an instrument designed to relieve the holder from prosecution under the Federal Law, and is not intended to be the basis of an action by the buyer against the seller-guarantor for reimbursement.

It is evident that a question of fact is here involved. If it is commercially practicable to pack crab meat in tins so that it will keep for a year under any conditions, you may doubtless rely upon the guaranty. On the other hand, if it is not possible by any known methods to pack crab meat so that it will keep wholesome during that length of time, it was the duty of yourself and of the retailer, in order to rely upon the guaranty, to dispose of the goods more quickly or to keep them in cold storage, or in the particular kind of storage that is most approved for that kind of product. The fact that you examined the product at the time of delivery and found it merchantable does not bar your claim, if the inspection you made was reasonably careful, and if it is commercially practicable for a packer to put up such goods so that they will not deteriorate as they did in this case.

We have no decision of the government or other information upon the subject of canned crab meat that would be directly applicable to this case, but it certainly seems to us that the product properly packed should, under ordinary conditions, remain wholesome over a much longer period than you and the retailers held it in this case. Furthermore, any one shipping it interstate after it became unwholesome would undoubtedly be liable under the United States Food and Drugs Act, notwithstanding the cause of deterioration or the care that was taken in packing or storing the product. The decision of a court or jury in this case would be determined upon disputed questions of fact, and the trial would doubtless be very expensive and troublesome for both sides. We strongly advise you to have the matter settled by arbitration, if that can be arranged. Practical experts in the trade are far better qualified to decide this issue than a court or jury.

BAKED BEANS.

Q. May beans lawfully be labeled "Baked" if they have been prepared by boiling?

A. In labeling "baked" beans it is the opinion of officers of the United States Department of Agriculture that the use of the word "baked" upon a container of beans would be deemed a misbrand unless the product has been actually baked. Boiled beans not subsequently baked should not be labeled "baked."

It has been said that the label "baked" may be properly used in cases where the process of cooking is to enclose the product in retorts and subject them to the heat and steam of hot water in such a manner that neither the steam nor hot water comes in contact with the beans. The fact that the beans have been hitherto called "baked" would not entitle them to be so-called unless they are actually baked.

SUGAR CORN.

Q. May corn that has been sweetened with sugar be legally labeled "Sugar Corn"?

A. The label "Sugar Corn" under the decisions should be used unqualifiedly only upon corn that is sweet in its natural state. The federal ruling is to the effect that sugar in small quantities for condimental purposes may be lawfully added to naturally sweet corn without a statement on the label, but corn not naturally sweet to which sugar has been added must not be branded "Sugar Corn" or "Sweet Corn." Further, it must bear a statement showing that sugar has been added.

JELLY.

Q. May tartaric acid be used in the preparation of jelly?

A. There appears to be no objection under the federal law to the use of tartaric acid in the preparation of jelly, provided it is not used to conceal inferiority and its presence is declared upon the label in type not smaller than 8-point brevier caps.

Attention has been called to the fact that commercial tartaric acid sometimes contains lead which is an impurity introduced in the course of manufacture. Lead being an injurious substance, the use of an acid containing lead in a food product would not be proper.

Q. If a product is thickened by the means of gelatine, could it properly be labeled as fruit jelly?

A. The Department of Agriculture has expressed an opinion that the term "jelly" without modification is applicable only to a product prepared according to Definition 12 of Circular 19 of the Department under "Fruit and Fruit Products," the gelatinous consistency of which is derived entirely from fruit. A product which is thickened by means of gelatine could not properly be labeled as "Jelly" but should be designated in such a way as clearly to indicate the nature of the product.

Recent Patents

The following patents of interest to readers of this journal recently were issued from the United States Patent Office. Copies thereof may be obtained from R. E. Burnham, patent and trade-mark attorney, 882 Bond Building, Washington, D. C., at the rate of 20c each. State number of patent and name of inventor when ordering:

1,209,803. Process for treating and curing meats and food products. Alonzo N. Benn, Chicago, Ill.

1,209,861. Apparatus for manufacturing cocoa. George G. Lennig, Philadelphia, Pa.

1,209,939. Baking-machine. Charles A. Costigan and James Denaro, Oakland, Cal.

1,210,002. Machine for coating cakes, etc. Lyman C. Reed and Owen P. Smith, New Orleans, La.

1,210,496. Process of producing continuous sheets of dough for biscuits or like products. Edward E. Lawrence, Cambridge, Mass., assignor to Loose-Wiles Biscuit Co., Kansas City, Mo.

1,210,542. Process of forming cakes from coffee. Frederick L. Savageau, Denver, Colo., assignor to The Independence Coffee & Spice Co.

1,210,563. Pressure cooker. Arthur R. Thompson, San Jose, Cal., assignor to Anderson-Barngrover Mfg. Co., same place.

1,210,588. Baker's mixture. Thomas G. Blacklock, Brooklyn, N. Y., assignor to Blacklock Milling Co.

1,210,589. Food product. Ashley V. Black, St. Louis, Mo., assignor to Grain Products Co., same place.

1,210,667. Process for the manufacture of artificial milk, and the treatment of its residues. William J. Melhuish, Upper Parkstone, England.

1,210,727. Ice-cream freezer. Frank Tyson, Canton, Ohio.

1,210,729. Apparatus for treating milk or cream. Theodore L. Valerius, Fort Atkinson, Wis., assignor to Creamery Pkg. Mfg. Co., Chicago, Ill.

1,210,782. Method of producing butter. Alpheus Fay, Louisville, Ky.

1,210,860. Apparatus for cooking canned goods. Edgar A. Sims, Port Townsend, Wash.

1,210,865. Process and apparatus for purifying milk. Earle J. P. Spencer, Phoenix, N. Y.

1,210,910. Process of renovating butter. Harry B. Eigelberner, Oak Park, Ill.

1,210,946. Stringing device for making confections. Theodor Kihlgren, Springfield, Mass., assignor to National Equipment Co., same place.

1,210,951. Carcass scalding, dehairing, and polishing machine. John W. Kohlhepp, Chicago, Ill., assignor to The Allbright Mill Co., same place.

1,211,124. Food product. John C. Fleming, Boston, Mass.

1,211,126. Cereal food. R. Jay Foster, Cereal, Pa., assignor to Jersey Cereal Food Co., same place.

1,211,462. Food-product, consisting of globules of starchy material, and method of preparing the same. Frederick G. Lorenzen, Battle Creek, Mich.

1,211,508. Butter making and molding machine. Charles Volkmann, Chicago, Ill., assignor to The Universal Butter Machine Co., same place.

1,211,844. Process of curing olives and product thereof. Frank P. Hebert, San Francisco, Cal., assignor of one-half to George J. Henry, same place.

1,212,205. Process of flaking friable groats. Niels Gerl-Holmen, Fredericksberg, Denmark, assignor to Klover-Byggryn-Fabrikken Danmark, Ltd. ,Copenhagen, Denmark.

1,212,216. Canning apparatus. Edward M. Harp, Dublin, Ga.

1,212,445. Egg-preserving compound. Henry D. Bostock, Jacksonville, Fla.

1,212,464. Oyster-shucking machine. Bruce V. Edwards, Newark, N. J., assignor to Oliver S. Campbell, New York, N. Y.

Tentative Definitions and Standards for Condiments Other Than Vinegars and Salt

The Joint Committee on Definitions and Standards is considering the advisability of adopting the following definitions and standards for spices. Any one interested is invited to present his views to the committee in writing, addressed to John Phillips Street, New Haven, Conn., or to J. S. Abbott, secretary of the Joint Committee on Definitions and Standards, Bureau of Chemistry, Washington, D. C.

A public hearing on this matter will be held in Washington, D. C., on February 12, 1917, by the Joint Committee on Definitions and Standards representing the United States Department of Agriculture, the Association of Official Agricultural Chemists, and the Association of American Dairy, Food and Drug Officials. All persons interested are invited to attend. The committee desires to obtain from the trade and others definite and accurate information concerning the composition, standards and descriptive terms or names of the various condiments, other than vinegars and salt, on the American market, so that appropriate definitions and standards may be determined and presented to the three associations for approval. The committee's tentative definitions and standards will be discussed at the hearing.

1. *Spices* are aromatic vegetable substances used for the seasoning of food and from which no portion of any volatile oil or other flavoring principle has been removed, and which are clean, sound, and true to name.

2. *Allspice, pimento,* is the dried* fruit of *Pimenta officinalis* L. Karts., and contains not less than eight per cent (8%) of quercitannic acid (calculated from the total oxygen absorbed by the aqueous extract), not more than six per cent (6%) of total ash, not more than three-tenths per cent (0.3%) of ash insoluble in hydrochloric acid, and not more than twenty-five per cent (25%) of crude fiber.

3. *Anise, aniseed* is the dried,* ripe fruit of *Pimpinella anisum* L. and contains not more than nine per cent (9%) of total ash, and not more than two per cent (2%) of ash insoluble in hydrochloric acid.

4. *Bay leaves* are the dried* leaves of *Laurus nobilis* L.

5. *Capers* are the flower buds of *Capparis spinosa* L.

6. *Caraway, caraway seed,* is the dried* fruit of *Carum carvi* L., and contains not more than eight per cent (8%) of total ash, and not more than one and five-tenths per cent (1.5%) of ash insoluble in hydrochloric acid.

7. *Cardamom seed* is the dried,* fruit of *Elettaria cardamomum* White and Eaton, and contains not more than eight per cent (8%) of total ash.

Cayenne and Red Peppers.

8. *Red pepper* is the red, dried,* ripe fruit of any species of *Capsicum*.

9. *Cayenne pepper, cayenne, chilli,* is the dried,* ripe fruit of *Capsicum frutescens* L., *Capsicum baccatum* L., or some other small-fruited species of *Capsicum,* and contains not less than fifteen per cent (15%) of non-volatile ether extract, not more than six and five-tenths per cent (6.5%) of total ash, not more than one per cent (1%) of ash insoluble in hydrochloric acid, not more than one and five-tenths per cent (1.5%) of starch, and not more than twenty-eight per cent (28%) of crude fiber.

10. *Paprika* is the dried,* ripe fruit of *Capsicum annuum* L., having the pungency and flavor characteristic of that grown in Hungary.

(a) *Rosenpaprika, rozsapaprika, rose paprika,* is paprika prepared by grinding specially selected pods of paprika, the placentae, stalks and the stems being removed, and contains no more seeds than are normal to the pods. It contains not less than fourteen per cent (14%) and not more than eighteen per cent (18%) of non-volatile ether extract, not more than six per cent (6%) of total ash, not more than four-tenths per cent (0.4%) of ash insoluble in hydrochloric acid, and not more than twenty-three per cent (23%) of crude fiber.

(b) *Königspaprika, king's paprika,* is paprika prepared by grinding whole pods of paprika without selection and includes the seeds and stems naturally occurring with the pods. It contains not less than twelve per cent (12%) and not more than eighteen per cent (18%) of non-volatile ether extract, not more than six and five-tenths per cent (6.5%) of total ash, not more than four-tenths per cent (0.4%) of ash insoluble in hydrochloric acid, and not more than twenty-three per cent (23%) of crude fiber.

(c) *Pimenton, pimiento,* is the dried,* ripe fruit of *Capsicum annuum* L. having the characteristics of that grown in Spain. It contains not less than eleven per cent (11%) and not more than fourteen per cent (14%) of non-volatile ether extract, and not more than eight per cent (8%) of total ash, no more than five-tenths per cent (0.5%) of ash insoluble in hydrochloric acid, and not more than twenty-one per cent (21%) of crude fiber.

11. *Celery seed* is the dried* fruit of *Apium graveolens* L., and contains not more than ten per cent (10%) of total ash, and not more than one per cent (1%) of ash insoluble in hydrochloric acid.

12. *Cinnamon* is the dried* bark of certain species of *Cinnamomum,* from which the outer layers may or may not have been removed.

13. *True cinnamon, Ceylon cinnamon,* is the dried* inner bark of *Cinnamomum zeylanicum* Breyne.

14. *Cassia* is the dried* bark of certain species of *Cinnamomum,* other than *Cinnamomum zeylanicum,* from which the outer layers may or may not have been removed.

15. *Cassia buds* are the dried,* immature fruits of certain species of *Cinnamomum.*

16. *Ground cinnamon, ground cassia,* is the powder consisting of cinnamon, cassia, cassia buds, or a mixture of these spices, and contains not more than five per cent (5%) of total ash and not more than one per cent (1%) of ash insoluble in hydrochloric acid.

17. *Cloves* are the dried* flower buds of *Caryophyllus aromaticum* L., and contain not more than five per cent (5%) of clove stems, not less than fifteen per cent (15%) of volatile ether extract, not less than twelve per cent (12%) of quercitannic acid (calculated from the total oxygen absorbed by the aqueous extract), not more than seven per cent (7%) of total ash, not more than five-tenths per cent (0.5%) of ash insoluble in hydrochloric acid, and not more than ten per cent (10%) of crude fiber.

18. *Coriander seed* is the dried* fruit of *Coriandrum sativum* L., and contains not more than seven per cent (7%) of total ash, and not more than one and five-tenths per cent (1.5%) of ash insoluble in hydrochloric acid.

19. *Cumin seed* is the dried* fruit of *Cuminum cyminum* L., and contains not more than eight and five-tenths per cent (8.5%) of total ash, and not more than one and five-tenths per cent (1.5%) of ash insoluble in hydrochloric acid.

20. *Curcuma, tumeric,* is the dried* rhizome or bulbous roots of *Curcuma longa* L.; (*Amomum curcuma Jacq.*) or *Curcuma rotunda* L.

21. *Dill seed* is the dried* fruit of *Anethum graveolens* L., and contains not more than ten per cent (10%) of total ash and not more than three per cent (3%) of ash insoluble in hydrochloric acid.

22. *Fennel seed* is the dried* fruit of varieties of *Foeniculum vulgare* Hill, and contains not more than nine per cent (9%) of total ash and not more than two per cent (2%) of ash insoluble in hydrochloric acid.

23. *Fenugreek* is the dried* fruit of *Trigonella Foenumgraecum* L., and contains not more than five per cent (5%) of total ash.

24. *Ginger* is the washed and dried,* or decorticated and dried, rhizome of *Zinziber officinale,* Roscoe, and contains not less than forty-two per cent (42%) of starch,† not more than eight per cent (8%) of crude fiber, not more than seven

per cent (7%) of total ash, not more than one per cent (1%) of lime, not more than two per cent (2%) of ash insoluble in hydrochloric acid, not less than fourteen per cent (14%) of cold water extract, and not less than two per cent (2%) of ash insoluble in cold water.

25. *Limed ginger, bleached ginger,* is whole ginger coated with carbonate of lime, and contains not more than ten per cent (10%) of total ash, not more than four per cent (4%) of carbonate of lime, and conforms in other respects to the standard for ginger.

26. *Horse-radish* is the root of *Radicula armoracia* L., Robinson.

27. *Prepared horse-radish* is comminuted horse-radish with or without a vinegar.

28. *Mace* is the dried* arillus of *Myristica fragrans* Houttuyn, and contains not less than twenty per cent (20%) nor more than thirty per cent (30%) of non-volatile ether extract, not more than three per cent (3%) of total ash, not more than five-tenths per cent (0.5%) of ash insoluble in hydrochloric acid, and not more than ten per cent (10%) of crude fiber.

29. *Macassar mace, Papua mace,* is the dried* arillus of *Myristica argentea* Warb.

30. *Marjoram* is the dried* leaves, with or without a small proportion of the flowering tops, of *Marjorana hortensis* Moench, and contains not more than sixteen per cent (16%) of total ash, and not more than four and five-tenths per cent (4.5%) of ash insoluble in hydrochloric acid.

31. *Mustard seed* is the seed of *Sinapis alba* L. (white mustard), *Brassica nigra* L., Kock (black mustard), or *Brassica juncea* L., Cosson (black or brown mustard).

32. *Ground mustard* is the powder made from mustard seed, with or without the removal of the hulls and a portion of the fixed oil, and contains not more than one and five-tenths per cent (1.5%) of starch† and not more than six per cent (6%) of total ash.

33. *Prepared mustard, German mustard, French mustard, mustard paste,* is a paste composed of a mixture of ground mustard with salt, a vinegar, and spices which do not simulate the color of ground mustard; and calculated free from water, fat, and salt contains not more than twenty-four per cent (24%) of carbohydrates (calculated as starch†), not more than twelve per cent (12%) of crude fiber, and not less than five and six-tenths per cent (5.6%) of nitrogen derived solely from the materials named above.

34. *Nutmeg* is the dried* seed of *Myristica fragrans* Houttuyn, deprived of its testa, with or without a thin coating of lime, and contains not less than twenty-five per cent (25%) of non-volatile ether extract, not more than five per cent (5%) of total ash, not more than five-tenths per cent (0.5%) of ash insoluble in hydrochloric acid, and not more than ten per cent (10%) of crude fiber.

35. *Macassar nutmeg, Papua nutmeg, male nutmeg, long nutmeg,* is the dried* seed of *Myristica argentea* Warb., deprived of its testa.

36. *Paradise seed, grains of paradise, Guinea grains, Melegueta pepper,* is the seed of *Amomum melegueta* Roscoe.

37. *Parsley leaves* are the leaves of *Petroselinum sativum* Hoffman.

38. *Black pepper* is the dried* immature berry *Piper nigrum* L., and contains not less than seven per cent (7%) of non-volatile ether extract, not less than twenty-eight per cent (28%) of starch,† not more than six and five-tenths per cent (6.5%) of total ash, not more than five-tenths per cent (0.5%) of ash insoluble in hydrochloric acid, and not more than fourteen per cent (14%) of crude fiber. One hundred parts of the non-volatile ether extract contain not less than three and twenty-five hundredths (3.25) parts of nitrogen.

39. *Ground black pepper* is the product made by grinding the entire berry of *Piper nigrum* L., and contains the several parts of the berry in their normal proportions.

40. *Long pepper* is the dried* fruit of *Piper longum* L.

41. *White pepper* is the dried* mature berry of *Piper nigrum* L., from which the outer coating or the outer and inner coatings have been removed, and contains not less than seven per cent (7%) of non-volatile ether extract, not less than fifty-two per cent (52%) of starch†, not more than three per cent (3%) of total ash, not more than three-tenths per cent (0.3%) of ash insoluble in hydrochloric acid, and not more than five per cent (5%) of crude fiber. One hundred parts of the non-volatile ether extract contain not less than four (4) parts of nitrogen.

42. *Peppermint* is the dried* leaves and flowering tops of *Mentha piperita* L., and contains not more than twelve per cent (12%) of total ash.

43. *Saffron* is the dried* stigma of *Crocus sativum* L., without more than ten per cent (10%) of yellow styles, and contains not more than six per cent (6%) of total ash, not more than one per cent (1%) of ash insoluble in hydrochloric acid, and not more than fourteen per cent (14%) of volatile matter when dried at 100° C.

44. *Sage* is the dried* leaf of *Salvia officinalis* L., and contains not less than one per cent (1%) of volatile ether extract, not more than ten per cent (10%) of total ash, not more than one per cent (1%) of ash insoluble in hydrochloric acid, and not more than twenty per cent (20%) of crude fiber.

45 *Savory, summer savory,* is the dried* leaf, blossom, and branch of *Satureja hortensis* L., and contains not more than twelve per cent (12%) of total ash, and not more than one and five-tenths per cent (1.5%) of ash insoluble in hydrochloric acid.

46. *Spearmint* is the dried* leaves and flowering tops of *Mentha spicata* L.

47. *Star aniseed* is the dried* ripe fruit of *Illicium verum* Hook., and contains not more than five per cent (5%) of total ash.

48. *Taragon* is the dried*, young leaves and flowering tops of *Artemisia dracunculus* L.

49. *Thyme* is the dried* leaves and flowering tops of *Thymus vulgaris* L. and contains not more than fourteen per cent (14%) of total ash, and not more than four per cent (4%) of ash insoluble in hydrochloric acid.

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*The term "dried" as used in this schedule refers to the air-dried spice.

†The term "starch" as used in this schedule refers to starch as determined by the official diastase method.

Vegetable Oils Standards.

Definitions and standards for edible vegetable fats and oils are outlined in Food Inspection Decision 169, just issued by the United States Department of Agriculture under the Food and Drugs Act. These definitions were recommended by the Joint Committee on Definitions and Standards consisting of representatives from the Association of American Dairy, Food and Drug Officials, the Association of Official Agricultural Chemists, and the United States Department of Agriculture. The definitions outlined in the food inspection decision were previously adopted by the two associations named above and were published on page 612 of the December issue of this Journal.

The text of the definitions follows:

Edible fats and edible oils are such glycerids of the fatty acids, as are recognized to be wholesome foods. They are dry and sweet in flavor and odor.

Cacao butter, cocoa butter, is the edible fat obtained from sound cacao beans (*Theobroma cacao* L.), either before or after roasting.

Coconut oil, copra oil, is the edible oil obtained from the kernels of the coconut (*Cocos nucifera* L. or *Cocos butyracea* L.)

Cochin oil is coconut oil prepared in Cochin (Malabar).

Ceylon oil is coconut oil prepared in Ceylon.

Corn oil, maize oil, is the edible oil obtained from the germ of Indian corn, maize (*Zea mays* L.).

Cottonseed oil is the edible oil obtained from the seed of the cotton plant (*Gossypium herbaceum* L.), or from the seed of other species of Gossypium.

Olive oil, sweet oil, is the edible oil obtained from the sound, mature fruit of the olive tree (*Olea europaea* L.).

Palm kernel oil is the edible oil obtained from the kernels of the fruit of the palm tree. (*Elaeis guineensis L. or Elaeis Melanococca* Gart.).

Peanut oil, arachis oil, earthnut oil, is the edible oil obtained from the peanut (*Arachis hypogaea* L.).

Poppy seed oil is the edible oil obtained from the seeds of the poppy (*Papaver somniferum* L.).

Rape seed oil, rape oil, colza oil, is the edible oil obtained from the seed of the rape plant (*Brassica napus* L.), or from the seed of closely related Brassica species, which yields oils similar in composition and character to the oil obtained from the seed of Brassica napus L.

Soy bean oil, soy oil, soja oil, is the edible oil obtained from the seed of the soy bean plant (*Glycine soja* L., *Soja hispida* Sieb et Zucc., *Soja max* L., Piper).

Sesame oil, gingili oil, teel oil, benne oil, is the edible oil obtained from the seed of the sesame plant (*Sesamum indicum* De Candolle, *Sesamum radiatum* Schum and Thonn, *Sesamum orientale* L.).

Sunflower oil is the edible oil obtained from the seed of the sunflower (*Helianthus annuus* L.).

Book Reviews

CHEMISTRY OF FAMILIAR THINGS.—By Samuel Schumucker Sadtler, S. B., American editor, *Allen's Commercial Organic Chemistry,* member the American Institute of Chemical Engineers and many other similar bodies. J. P. Lippincott Company, Philadelphia, Pa. 320 pp. $1.75 net.

Dr. Sadtler is well known to the food industry. Many of us have gone to him when in need of help that only a chemical engineer can give. In the present title, we see the genial Doctor in, so to speak, his smoking jacket and slippers, sitting around the fire and gossiping about the chemistry of everyday life. His dissertations range from the nebular hypothesis to the hydrogenation of liquid fats. He covers the intervening subjects in a manner both easy of comprehension and of interest to those who have any desire whatever to familiarize themselves with things in nature and the arts. This is not a textbook, nor is it a book of reference. It is a book of general interest to the educated man or woman and should find a ready reception among them.

THE PRINCIPLES OF HEALTH CONTROL.—By Francis M. Walters, A. M. Professor of Physiology and Hygiene, State Normal School, Warrensburg, Mo. D. C. Heath & Company, Boston, Mass. 476 pp. $1.60 net.

This is a strictly scientific book, delightfully written and well illustrated. In these days when the presses are busy turning out titles on this subject of how to secure and maintain one's health, coming from the pens of faddists of all sorts, it is a pleasure to find a book based upon the solid ground work of organized science. The fact that the author introduces his first chapter with Lyell's phrase, "We can command Nature only as we obey her laws," gives a fair indication of the spirit animating the entire book. As one of the most important means of controlling health is that of food, this book is properly to be included in any well balanced library devoted to that topic. The subjects of adjustments in food, avoidance of harmful substances, the use of substances that improve the digestive organs and the details of metabolism and elimination are all well handled.

DAIRY TECHNOLOGY.—By C. Larsen, M. S. A., Professor of Dairy Husbandry, South Dakota State College, Brookings, S. D., and Wm. White, B. S. A. formerly Instructor of Dairy Husbandry, South Dakota State College, Brookings, S. D. John Wiley & Sons, Inc., New York, N. Y. 298 pp. $1.50.

This title treats all of the dairy industry with the exception of butter and cheese, and it is authentic, up-to-date and scientific. Limited, as it is, to the subject of the production and preparation of sanitary, certified, modified, fermented, dried and condensed milks, the manufacture of ice cream, renovated butter, oleomargarine, milk sugar, and casein, its authors treat those topics exhaustively and in a manner of real interest to those in the dairy products industry or to those whose work has to do with the control of that highly important division of the food trade.

PRINCIPLES AND PRACTICE OF BUTTER-MAKING.—By. G. L. McKay, Dr. Sc., Secretary, American Association of Creamery Butter Manufacturers, formerly Professor of Dairying in the Iowa State College, Ames, Ia., and C. Larsen, M. S. A., Professor of Dairy Husbandry, South Dakota State College, Brookings, S. D. John Wiley & Sons, Inc., New York. 351 pp. $1.50 net.

This book should be considered the companion to *Dairy Technology* by Larsen and White. It is confined to the subject of the commercial manufacture of butter, and is at one and the same time both scientific and practical. The first edition was published in 1906, and was followed by a second printing in 1908, the present edition having been printed in 1915. A very large number of butter makers have this book on their shelves; the balance should most certainly add it to their library.

THE SOURCE, CHEMISTRY AND USE OF FOOD PRODUCTS.—By E. H. S. Bailey, Ph.D., Professor of Chemistry and Director of Chemical Laboratories, University of Kansas. P. Blakiston's Son & Company. 517 pp. $1.60 net.

While not a new book, having been printed in 1914, Dr. Bailey's very complete handling of the subject of foods is of such nature as to demand its inclusion in any list of titles designed to cover the subject of foods. The arrangement of the book is more logical than is sometimes the case in similar works, the main products, by-products, and derivatives being, as a general thing, considered in connection with each principal raw material. Some years ago Dr. Bailey published a book entitled "Sanitary and Applied Chemistry," a most excellent treatise for general reading, and this later work is, in a way, an amplification of his former title. The book is well illustrated with halftones of modern food-making machinery.

AN INTRODUCTION TO SCIENCE.—By Bertha M. Clark, Ph.D., Head of Science Department, William Penn High School for Girls, Philadelphia, Pa. American Book Company, New York, N. Y. 479 pp. $1.20.

Science connotes exact knowledge: p. 151 of *An Introduction to Science* states "many states have prohibited the use of alum in baking powders". It is unfortunate at this time when so much good work is being done along scientific lines by those interested in domestic matters that inaccuracies of this sort should be allowed to appear in new books. This particular introduction to science was written by a doctor of philosophy who is at the head of the science department of one of the best girls' schools in the country. She holds that "most people never read labels," a disheartening reflection upon the validity of the Food and Drugs Act which is in its very essence a labeling measure.

FOOD STUDY.—By Mabel Thacher Wellman, Associate Professor and Head of Department of Home Economics in Indiana University. Little, Brown and Company, Boston, Mass. 314 pp. $1.00 net.

This is an excellent combination laboratory manual and textbook on domestic science. By disregarding the laboratory experiments constituting a part of each chapter, the text will serve as a full, connected treatise on the subject of food. Conversely, the experimental work, by itself, forms an excellent laboratory manual. Miss Wellman has evidently looked a bit deeper into the baking powder situation than have the authors of other somewhat similar titles and when discussing alum powders states, "Much objection has been made to these powders, because it was feared there might be injurious effects from the alum used. Repeated experiments do not seem, however, to show that the residues here are any more harmful than in the other cases. Manufacturers of tartrate powders have done their best to prove alum powders injurious because, as alum is much less expensive than cream of tartar, these last powders are naturally much cheaper." The same well balanced sizing up of the situation seems to govern her statements in connection with practically all controversial matters which have to do with food. This is the best book on this particular subject it has been our good fortune to see for a long time.

Staff Correspondence

Washington, D. C.

The question of removing or reducing the present tax of ten cents a pound on colored *oleomargarine* promises to come up in the next congress, even though it seems unlikely that consideration can be given it in the few days remaining in the present session. While two years ago no one seriously would have given consideration to proposals to remove the tax on colored oleo, today there appears to be a growing sentiment in congress to take it off. The majority probably is still against removal. This is so on the house agricultural committee and on the house ways and means committee.

The chief argument in favor of removing the tax is that it will lower the cost of living. The chief argument against removing it is that it will permit wholesale adulteration of an important food product. But there is another argument, which, while it probably will not be brought forward so prominently, will have great weight with the democrats and that is that the tax on colored oleomargarine produces more than a half million dollars income each year for the federal government. With the majority party turning to every corner from which the wind blows in order to find new means of obtaining revenue, there seems little likelihood of its surrendering without a hard fight even so moderate an amount as is obtained from colored oleomargarine.

There are several elements in the situation which add much interest to it. Representative Linthicum of Maryland, who introduced a resolution some months ago for a general investigation of the dairy interests, says he will reintroduce it in the next congress and press it to a vote in the house. The dairy interests are opposed to the Linthicum bill. Mr. Linthicum would have stricter federal control of their business, especially where milk and butter enter into interstate commerce. He would have an investigation made by the federal government into the sanitary conditions on dairy farms; into the condition of the herds, in an effort to discover just how much tuberculosis and other disease there may be; and into every phase of the dairy and buttermaking industries.

With respect to his resolution, Mr. Linthicum recently said:

"I have heard such varying accounts concerning the dairy industry conditions that I think they should be investigated thoroughly so that legislation, if it is necessary, may be enacted to correct evils and the dairymen may be cleared of all charges which are false."

Ever since the tax was first levied on oleomargarine the dairy interests have been strongest in the opposition to its removal. They are back of the Haugen bill, which would provide even more stringent regulations over the manufacture of oleomargarine and a higher rate of taxation. They are bitterly opposed to the bill recently introduced by Mr. Aswell of Louisiana to remove the ten cent tax and place a straightaway tax on all colored and uncolored oleo.

That the people of the country are consuming more and more oleomargarine each year is indicated by the report of the commissioner of internal revenue for the fiscal year ending June 30, 1916.

"During the fiscal year 1916," he said, "there was produced a total of 145,760,973 pounds of uncolored oleomargarine, of which 145,443,578 were withdrawn tax paid at one-fourth cent, as against 138,241,907 pounds produced and 137,693,610 pounds tax paid during the fiscal year of 1915, thus showing a net increase of 7,546,066 pounds in the production, and 7,749,968 pounds in the withdrawals tax paid during 1916."

The commissioner further points out that in 1916 a total of 6,748,940 pounds of colored oleomargarine were produced. That the color tax of 10 cents a pound is cutting down the consumption of colored oleo is also indicated by the report which shows that in 1915 a total of 7,595,141 pounds of colored oleomargarine were produced, a decrease of approximately 850,000 pounds in 1916.

Particular significance is attached to a recommendation of Commissioner Osborne to the effect that the double standard of taxation should be eliminated and that a new system of taxing oleomargarine should be worked out with a main eye to the revenue to be derived therefrom. Thus far no formal suggestions have come from the treasury department concerning this system, but if the democrats organize the house in the next congress, such suggestions may be expected, notwithstanding the democratic tariff policy of removing taxes from foodstuffs as generally as possible.

The house has not acted yet on the *Borland Resolution* for a general investigation by the federal trade commission into the food situation in the United States. Mr. Borland and his friends will make a hard drive for its consideration in the brief period that congress remains in session. The commission is overloaded with work now, and estimated it would cost between $150,000 and $200,000 to do the work outlined in the Borland resolution.

During the last few weeks there has been considerable talk in Washington that the *Federal Trade Commission* is not to last long. It may be abolished, it is said, simply by the refusal of congress to appropriate further for its work, as in the case of the late commerce court. This talk has been increased since the resignation of Chairman Hurley of Chicago, who was generally regarded as the one strong man of the commission. At the present time there are two vacancies in five memberships on the commission, those of Mr. Hurley and Mr. Rublee, whom the senate defeated for confirmation. The president has not indicated whom he intends to appoint to fill them.

With respect to *food investigations,* the department of justice has practically ended its second inquiry in the last two and a half years. The only result of this inquiry, so far as can be ascertained, is to be found in the unconfirmed statement of the department that by investigating the situation it prevented further increases in prices where they were not justified.

United States Attorney Anderson of Boston was put in charge of the investigation and agents of the department throughout the country have been busy under his direction. It is believed there will be few if any prosecutions for violations of the federal law, as the department at the outset stated its belief that it had little authority under which to proceed.

California.

The recently completed biennial report of the Bureau of Food and Drugs is briefly summarized below. The report shows a considerable increase in the work and efficiency of the bureau with but slight increase in the working force. The personnel of this department was the same for both years of this biennial period, with the exception of the addition of one inspector for the year ending June 30, 1916. This inspector increased the inspection force from five to six men. Neither the laboratory staff nor the office staff was increased. The second column as listed below, designated as the year ending June 30, 1916, covers the activities of the bureau under the direction of E. J. Lea:

	Year ending June 30, 1915.	Year ending June 30, 1916.
Total samples analyzed, foods, drugs, state institution and cold storage	2,512	3,384
Food and drug samples, official, totals	1,316	1,665
Food and drug samples, official, illegal	612	1,077
Percentage of illegal samples...	45.6	64.7
Cases reported to State Board of Health for action..........	345	746
Cases referred to district attorneys for prosecution..........	30	461
Fines imposed	$ 170.00	$6,021.00

Imprisonments	4
Cases pending	56
Decomposed food destroyed	Over 1,000,000 lbs.

The total samples analyzed include those of food and other products analyzed for state institutions, in accordance with the plan instituted by the State Board of Control. Some of these samples were submitted with bids, but the majority represent deliveries to the institutions. This system of checking the supplies for state institutions has resulted in a marked increase in the quality of foods and other supplies and it has also resulted in a great saving of money to the state.

The four imprisonments listed were for violations of the food or drug acts. These imprisonments ranged from thirty days to six months. The six months' sentence was given in addition to a fine of $500, both of which were the maximum under the food law. The nature and extent of the violations in this case called for severe punishment.

Realizing the necessity for a better system of preventing decomposed foods from being sold on the markets, Director Lea made application to the State Board of Health for authority under the general health laws of the state to quarantine decomposed foods. This authority was granted, after which all decomposed or unfit foods coming to the attention of his department were quarantined pending the necessary hearings, as required by law. In nearly all cases the owners consented to the destruction of the foods without court action, but in a few cases it was necessary to get an order from a judge for the destruction of bad foods. Prior to the introduction of this system, practically no decomposed foods were ever destroyed, through the efforts of this department, because there was no way of holding the goods until the cases were brought to trial, and in the meantime dealers disposed of the questionable stock.

In many ways there has been a notable improvement in the quality of food and drug supplies in this state. Director Lea states that a large majority of the wholesale and retail dealers seem to be honest in principle, although many of them are influenced by the questionable practices of others, and a certain percentage of dealers seem to require almost constant supervision. The wholesale and retail dealers' associations are strongly in favor of the pure food and drug movement, and give much valuable assistance. Newspaper publicity is also of great value in this work, because it helps educate the ignorant and careless dealers; it retards the activities of the wilful violators of the law, and it serves to educate the public and enables them to be more discriminating.

Idaho.

In his biennial message to the present legislature, Gov. Moses Alexander recommended that the public health and pure food *departments* be *consolidated*. This is recommended in the interests of efficiency and economy. The governor also suggested that of the branches of the health department, the chemistry department should be removed to the University of Idaho, where it can be well managed without additional expense to the state, the bacteriological department being retained at the state capitol, because most of the work of the department is done here. Persons for whom work is done by the department are to be required to pay for all services rendered.

Commissioner J. K. White recently recommended the appointment of a *weights and measures* inspector for Idaho.

Running a state department at $20,000 less for the biennial period than it was run the previous biennium may seem impossible, but that was the record made in 1915-1916 by Commissioner White of the pure food department of Idaho.

Indiana.

The complaints received by Commissioner Barnard about the decreasing size of the bakers' loaf prompted a state wide investigation. The twenty-four inspectors of weights and measures were instructed to purchase loaves of *bread* each day for a week from each baker in their city. The products of 111 bakers doing business in 13 cities were weighed during the week of December 10; 1,833 ten-cent loaves averaged 21.22 ounces; 3,443 five-cent loaves averaged 11.05 ounces. In Indianapolis the loaves of 20 bakers weighed 22 ounces and 11 ounces respectively. In three cities the ten-cent loaf weighed more than twice as much as the five-cent loaf, but in several places the bakers were evidently not keeping faith with the consumer, for their statement that they would sell more than twice as much bread for ten cents as for five cents was not proven by the weights determined by the inspector. In Gary, for instance, the ten-cent loaf weighed but 18.9 ounces, while the five-cent loaf weighed 10.8 ounces. In this town the consumer saves money by buying the smaller loaf. The ten-cent loaf of rye bread averaged 24.9 ounces in weight and the five-cent loaf 12.2 ounces. The bakers of two cities manufacture an eight-cent loaf which weighs 25.6 ounces. One of the interesting points developed in the work was that the large bakers were giving more bread for a nickel or a dime than the smaller bakers.

In the annual round-up of *liquors* made by the state food inspectors no spurious whiskies were found. In every case the samples collected were up to proof, free from added sugar and artificial color. In a number of cases the bottles in which the whiskey was sold did not show the net volume of the contents as required under the weights and measures law. Several samples of temperance beers sent in during the month from dry territory upon analysis proved to be genuine beers masquerading under a non-alcoholic label.

The report of the Weights and Measures department for 1916 has just been sent to Governor Goodrich. It shows that the department together with its deputies in fourteen cities and seven counties inspected 80,735 scales, weights, liquid and dry measures, automatic pumps, yard and counter measures, gas, water and electric meters and other devices used for weighing and measuring. Of the 22,785 scales tested, 20.34 per cent were found to be incorrect; 15.23 per cent of the 16,638 weights examined were incorrect. Of the 12,645 dry measures used in grocery stores and in selling dry commodities 15.03 per cent were incorrect; 8,735 liquid measures were incorrect to the extent of 14.09 per cent; 1,986 automatic pumps used for the sale of gasoline were tested and 25.76 per cent were not delivering the proper quantity of gas. A large number of baskets, boxes and barrels were tested, usually because they were apparently of no definite size; 84.2 per cent of all these tests showed the containers to be neither pints, quarts, bushels nor barrels. The inspectors of weights and measures filed 83 cases against dealers for the use of incorrect measuring and weighing devices during the year. In 57 cases convictions were obtained and fines amounting to $1,021 were assessed by the courts. Twenty-six cases are still pending.

During the month of December but 69 *food samples* were analyzed. Of this number but 20 were listed as illegal. Two sausage samples were found to contain starch. The other illegal samples were dilute vinegars, skimmed milks and highly fermented ciders sold as sweet.

The food and drug inspectors visited 916 places manufacturing and selling food during December. They found 529 places in good *sanitary* condition, 347 fair, 34 poor and 5 bad. As usual, the grocery stores were in satisfactory condition. The hotels and restaurants did not make as good a report, 31 being rated good, while 43 were fair and 4 poor.

In a number of cities where the *water supply* has hitherto been of irreproachable quality, it has been necessary to issue instructions to householders to boil the water before using. It is apparent that no water supply will remain pure indefinitely, no matter what its source, and that a daily analytical check is necessary to protect the consumer of water from a public supply.

In an endeavor to relieve the consumer who is finding food prices advancing even more rapidly than his wages, Commissioner Barnard has started a *"Use More Corn"* campaign. He points out that corn is one of the richest foods, and at the same time the cheapest food now obtainable. He has calculated that three cents worth of corn meal contains as much food as is packed in $1.10 worth of eggs at the present price of a nickel apiece. He has shown that food in the form of cheese costs eight times as much as when it is purchased as corn meal and that 50 cents worth of round steak will go no further in feeding the family than a pound of meal. His figures place potatoes and cabbages among rare and extravagant luxuries as compared with corn.

The Indiana *canners* are now contracting acreage for next season's pack. The high prices received for the 1916 pack have stimulated interest in the industry and more canneries will be operated this coming season than for a number of years past. Several new plants are being built and old plants rebuilt to conform to the requirements of the sanitary food law. The canners have asked the pure food department to place a special inspector in the field during the canning season in order that the quality of the Indiana pack may be safeguarded, both by the careful canner and the state official.

Governor Goodrich in his message to the legislature, delivered the day of his inauguration, proposed a number of drastic changes in the several state departments. In line with his wish a bill has been drafted which abolishes the present system of *oil inspection* and places the inspection in the hands of the state food commissioner and his deputies. The bill abolishes the offices now held by sixty inspectors and maintained at a cost of $100,000 a year, and proposes that the pure food commissioner shall be the State Oil Inspector. It further provides that the present expensive organization shall be succeeded by an organization of three inspectors, two chemists and a clerk and that the total expense of the department shall be not to exceed $10,000 a year.

Commissioner Barnard has started a crusade against the use of second-hand bottles as *containers* for food. The reports of the inspectors show that the bottles which find their way to the junk dealers' warehouse are collected from dumps, garbage heaps and alleys. Before they are sold they are ostensibly washed by the dealer. The washing consists in rinsing out the dirt and leaving an apparently clean surface. As a matter of fact, bottles so washed without hot water and sterilizing fluids are still filthy and unfit food containers. A glass container properly cleansed can be used until it is broken. It never wears out, but the difficulty of cleansing the container without proper equipment makes the use of second-hand bottles a menace to the public health. The pure food inspectors have therefore been instructed not to allow the use of second-hand bottles in food plants unless provisions are made at the plant for properly washing and thoroughly sterilizing all bottles before use.

Kansas.

Attorneys for the Corn Products Refining Company have served notice of appeal to the United States Supreme Court in the matter of the recent decision of the Kansas Supreme Court relative to the *"Mary Jane"* case.

In appeal from Shawnee county the Supreme Court affirmed the decision of the lower court in a suit of the Stewart Poultry Company of Wichita vs. the Erie Railway Company, awarding damages sustained by the former by reason of delay in shipment and delivery of a car of poultry to New York City. As a result of eighteen hours' delay in transmission, shipment reached New York on a glutted market marked by sharp decline in prices.

It is rumored that R. R. Baer, president of the Topeka Packing Company, has been offered the managership of the National Poultry and Egg Plant, with headquarters at Atchison, and will probably accept the position shortly.

The city of Lebanon levied an occupation tax of $250 per year on merchants who proposed to engage in the sale of *sweet cider,* the object of such tax, it was held by the city, being to discourage the possibility of clandestine and illegal liquor sales. The Kansas Supreme Court has held such a tax to be an unjust tax.

The legislature has rejected the plan for the appointment of a commission to investigate the high cost of living on the ground that such a commission in the short space of a fifty-day session could discover nothing which could be of value for the expense incurred.

The following bills relating to food products have been introduced during the present session of the legislature:

House Bill 279, an act prohibiting the sale of overfed or "croppy" *poultry.*

House Bill 312, an act relating to the grading, testing, sanitary handling, marking, branding, use and inspection of *milk,* cream, ice cream or similar frozen products, cans, containers, bottles and vessels connected therewith and fixing fees for such inspection by the state dairy commissioner. (Note: This would remove such products from the control of the State Board of Health. Another provision lowers the standard of fats in ice cream from 14 to 12 per cent.)

Senate Bill 10, an act relating to *private warehouses* and amending and re-enacting sections 3427 and 3428 of the General Statutes of 1909, being sections 1 and 2 of chapter 224 of the Session Laws of 1905.

Also twelve bills, all of which have for their purpose the making of the state "bone-dry," as far as the sale of *liquor* is concerned. These all result from the stimulus of the decision on the Webb-Kenyon bill.

Maine.

Reports of analyses of samples of canned *blue berries,* canned corn and sardines have been received from the laboratory during the last few days and are being sent out to the dealers. It is gratifying to report that in almost every instance the product was found to be of good quality and in all instances the samples were passed.

An investigation is being made just now of the *clam* situation, both with reference to the floating and soaking of clams in the open market and also the product that is being used at the establishments where clams are being canned.

Early in the month several violations of the law were brought to our attention concerning the sale of *cattle* suspected of being diseased, and as a result of an investigation three dealers in the vicinity of Bangor have been brought to justice.

As for *new legislation* pending which is of interest to the food department, a bill has been introduced regulating the sale of cold storage products, a sanitary measure providing for flush closets in all manufacturing establishments and a bill asking for slight alterations in the fertilizer law. These are among the items of proposed legislation which have either been entered and assigned to committees or are being talked about the capital.

Massachusetts.

More than 1,600 petitions have been filed with the General Assembly. As usual, milk and rum have claimed the attention of a large number of petitioners and the popular unrest on account of the inflated prices for food stuffs is reflected in the various demands for investigations by every tribunal which has any excuse for investigating anything.

The *cold storage warehouses* are the targets for much of the legislation, and if the petitioners have their way the warehousemen will pay dearly if they try to corner the supply of any kind of food and hold it in storage until the soaring prices have reached a limit that will satisfy them. The Commissioner of Health has recommended that the term "cold storage" shall be construed to mean the storage of articles of food at or below a temperature of forty-five degrees Fahrenheit for a period of thirty days or more, thereby raising the degree of temperature five degrees and establishing a limit of thirty days for storing without requiring that the goods shall be labeled "cold storage." Among his other recommendations are a definition of "articles of food," a clause calling for monthly instead of quarterly reports, a year's time limit on cold storage except under certain specified conditions, a clause calling for the conspicuous display of a sign marked "Cold Storage Goods Sold Here," together with the customary clause designed to prevent an evasion of the law by means of transferring storage goods from one warehouse to another. Among the petitions aimed at the storage business are many calling for the stamping upon each egg of the words "Cold Storage," together with the date received at the storage houses, one limiting the period of storage to nine months, one calling for the denaturing of eggs which are wholly or partly decayed or decomposed. Other petitions include one from Mayor Curley of Boston calling for the licensing of establishments where sausages are manufactured or eggs are broken or canned. Another by Mayor Curley provides a rather severe punishment for anyone dealing in decayed or unwholesome foods of any sort.

Representative Roland D. Sawyer has presented a bill, the purpose of which is to compel all parties dealing in *milk* to secure a bonded license. Failure to comply with the laws pertaining to the sale of milk will be considered a breach of the conditions of the bond, as will failure on the part of the milk contractor to pay his patrons for products furnished. Representative Sawyer has also introduced a bill relative to the grading and classification of milk. This provides that grade A milk is to contain not less than 3.8 per cent butter fat with a bacterial count on five consecutive days of not more than an average of 100,000 bacteria per cubic centimeter. Grade B shall be similar to grade A, with the exception that its butter fat shall not be less than 3.35 per cent. Grade C shall be similar to grades A and B, with butetr fat content of not less than 3 per cent. Commissioner of Health McLaughlin strongly recommends that all milk sold in Massachusetts be pasteurized and has asked for legislation to that effect. Dr. McLaughlin's definition of pasteurized milk is "Natural cow's milk not more than 72 hours old, subjected to a temperature not less than 140° nor more than 150° F., and kept at such temperature not less than 30 minutes and immediately cooled therefrom to a temperature of 50° F. or lower."

Michigan.

Over 50,000 gallons of *vinegar* have been tied up by the State Food Department in various parts of Michigan during the last sixty days and many seizures of Michigan vinegar have been made by federal authorities outside the state—and thereby hangs a tale.

Up to four years ago Michigan had a vinegar law embodying a standard calling for a certain proportion of solids. At that time Michigan vinegar manufacturers appeared before the Food Department seeking the passage of a new vinegar law. It was claimed that the longer vinegar aged, the less became its solid contents until, in order to comply with the law, it became necessary to add to good cider vinegar certain solids like boiled cider. The manufacturers also complained that cider vinegar at times developed excessive acidity which must be reduced by water to make it palatable and in so doing the manufacturer necessarily, although unwittingly, violated the law.

Michigan is the third state in the union in the production of apples, and as a result has a large number of cider vinegar manufacturers within its borders. The Dairy and Food Department wishing to encourage this industry was instrumental in having a new law passed which protected the consumer without embarrassing the manufacturer. The new law was very simple. It abolished the standard of solids and provided that there should be three kinds of vinegar; namely, apple, distilled and sugar vinegar. It defined that each should be made from the substances that their names designated and should be labeled accordingly, but should not be colored, and no mixing of the vinegars was allowed. The whole object of the law was simply to have cider vinegar made from cider and from nothing else. The manufacturers were allowed to dilute their product to a 4 per cent acid strength.

At the time the law was passed vinegar made from dried peels and cores was practically unknown and no mention thereof was made in the act. About two years ago Michigan manufacturers began to complain of competition and cut prices from outside the state. A large amount of dried peel and core vinegar was being shipped into the state. In self-defense Michigan manufacturers began to make cheap vinegar and a recent survey of the state by the Dairy and Food Department showed that but very few manufacturers were making a legal vinegar. Many different methods of making cheap vinegar were unearthed. One firm would use dried peels and cores which had been shipped into the state from outside, although Michigan apples were rotting on the ground. Another firm shipped in distilled vinegar by the tank load and proceeded to color it and label it cider vinegar. Other manufacturers, in order to comply with the solid standard laws of other states, were found to be adding phosphoric acid, glycerine and other solids in defiance of the law. The legitimate cider vinegar makers made bitter complaint because they could not compete with these cheap vinegars. A cleanup of the state has been in progress now for sixty days and the federal department has co-operated by seizing outside shipments. The manufacturers express satisfaction in the fact that the department is going to make them all be good and that in the future they will be on the same basis of competition.

No prosecutions have been started, seizures being used to compel the manufacturers to stop making an illegal product. In cases where the distilled and cider vinegar have been mixed the compound has been allowed to be used for pickles. Every effort is being made to clear up the situation without too great a hardship on the manufacturers because the situation was forced upon them by bad trade conditions, but they are being warned that future violations of the Michigan law will meet with stern punishment. In the meantime the department will go before the legislature and have the vinegar law so amended that legal vinegar may be more clearly and distinctly defined.

Minnesota.

Led by St. Paul club women, an organized effort is being made throughout the state by women's organizations to have the present legislature pass a law requiring state inspection of meat. That much impure meat is going into Minnesota stomachs is conceded pretty generally. As a reason for the menace to health those interested in the pure meat campaign say that much meat is slaughtered within the state and sold in intrastate commerce, thereby escaping federal inspection.

Women pioneers in the movement feel that in taking up the question of pure meat they begin to deal with a subject which is of vital importance to every housewife. Plans are being made to frame a bill for introduction in the legislature with the idea of having the whole matter discussed at public hearings before a committee of the legislature. Solution of the problem may be arrived at in two ways—by state inspection or by municipal inspection.

Missouri.

Several important bills have been introduced in the present legislature by Commissioner Fricke, among others being two designed to regulate weights and measures and cold storage of foods. Missouri has not as yet incorporated in its state code the Shirley amendment to the Federal Food and Drugs Act.

At present the control of *weights and measures* in Missouri is exercised by the municipalities, but outside of these places the owners and proprietors of weights and measures are supposed to bring them annually to the county clerk's office for inspection and comparison. The law does not provide for a personal inspection of weighing scales. The new bill provides that the office of Commissioner of Weights and Measures shall be created and the duties performed by the State Food and Drug Commissioner. It provides for an annual inspection on a fee basis of scales and other automatic weighing devices, as well as slot machines. Fees are regulated by the capacity of the scales. The bill contains provisions that weights in the custody of the inspectors of weights and measures of cities must correspond to those in the custody of the Food and Drug Commissioner. The jurisdiction of the commissioner embraces the entire state and includes the supervision of all weighing devices and automatic slot machines and will, if passed, not only produce considerable revenue but enlarge the powers of the Food and Drug Commissioner.

The handling of *cold storage products* in Missouri is one that has attracted a great deal of public attention. A vigorous crusade against the present system was recently conducted by the *St. Louis Republic* and it was claimed that the retention of articles of food in cold storage warehouses tended to increase the cost of these articles, and thereby to raise the cost of living to the masses of the people. The price of some of the most extensively and commonly used articles of food, such as eggs, fowl, meats, potatoes, etc., has soared to an unprecedented high mark. The commission houses handling these articles claimed that it was due to the scarcity in production and the large shipments that were made to other countries. However, the public clamor resulted in the matter being taken up by the civic authorities and an investigation was held by the Board of Aldermen, to which many of the prominent commission dealers were brought and examined. There are now two bills before the legislature dealing with a settlement of this problem—one introduced by private parties and the other by Commissioner Fricke.

The bill introduced at the instance of the Food and Drug Department has the endorsement of the federal authorities, and many of the authorities of other states. It provides that articles of food shall not be held in cold storage for a period exceeding twelve months, unless certified to by the commissioner, and that they shall bear in plain and legible letters and figures the date upon which they were received and the date upon which they were removed from the cold storage houses. This bill is receiving strong support in both houses of the legislature and the commissioner is strongly of the impression that it will be passed.

In 1909 a law was passed empowering the State Board of Agriculture to appoint a Dairy Commissioner whose duties were largely educational in the matter of proper sanitation in dairies and dairy products. The inspection of these establishments and products, and their general supervision, are also under the supervision of the State Food and Drug Commissioner and the existence of these two offices has led to some confusion. A bill has been introduced whose purpose and scope is to amalgamate these departments and vest the entire *control of dairies* and dairy products in the State Food and Drug Commissioner.

Commissioner Fricke has also introduced an *egg breaking* bill, similar to the one in force in Illinois. It provides that these establishments shall be conducted under the supervision of the Food and Drug Department, penalties being stipulated for refusal to obey the orders of the commissioner.

Ohio.

State *dairy inspection* will be materially strengthened if the present legislature grants a request of the State Board of Agriculture for an appropriation of $50,000 to enable the board to add 20 more inspectors to the present inadequate force of dairy inspectors. The request is now being considered by the finance committee of the house of representatives, and the indications are that a generous allowance will be made.

It is practically certain that a radical change will be made in the State Board of Agriculture by the legislature. Gov. James M. Cox in a message to that body strongly recommends that the secretary of the board be changed to a *secretary of agriculture,* and that he, instead of being merely an employe of the board, be made the head of the agricultural department and that the board, which consists of ten members, be put behind him in an advisory capacity. The board members draw no salaries and meet once a month.

The governor also recommends that the governor, the secretary of agriculture, the dean of the college of agriculture of the state university and the director of the state agricultural experiment station be formed into an *agricultural council,* and that this body meet at least monthly for the purpose of avoiding duplication, and for the promition of harmony of action between educational, scientific and administrative departments devoted to the subject of agriculture.

The Ohio Mine Workers, with a membership of almost 50,000, at their state convention, held in Columbus in January, adopted a resolution requesting President Wilson to place a temporary *embargo* on the exportation of food stuffs in an effort to reduce the high cost of living, and favoring the creation of a federal board by congress, consisting of the secretaries of agriculture, commerce and labor, empowered to make an exhaustive investigation into the causes of the high cost of living.

The Columbus city council is considering a proposal to join in a statewide movement, started at Toledo, calculated to bring about governmental ownership of *cold storage warehouses.* Judge Dennis Dwyer of Dayton, who was a member of the constitutional convention of 1912, is urging the legislature to enact a law limiting the time for the keeping of food products in cold storage. The Columbus Housewives' League next spring will try the co-operative plan of cold storage of eggs. The intention is to purchase eggs in large quantities when prices are low and put them in cold storage.

W. H. Lapp, instructor in the dairy department of the state university, says that cold storage has increased the prices of eggs from 50 to 75 per cent.

Councilman Fred Zimper has introduced an ordinance for the establishment of a *consumers' market.*

The Columbus Housewives' League is advocating the use of rice as a substitute for potatoes, the eating of simpler meals and cheaper cuts of meat as a means of reducing the *cost of living.*

Farmers' week at the State University at Columbus, which opened January 29 and continues to February 2. will be featured by meetings of many food producing agencies. One meeting is by the Ohio State Dairymen's Association. Liberal prizes will be offered for the best exhibit of dairy butter, market milk and market cream. The egg show is another interesting feature. Among the subjects for discussion during farmers' week are these: Food selection for rational and economic living, cost of food (illustrated), food preservation (demonstration), soy beans, producing milk at a profit, feeding fowls for egg production, grading the farmers' corn under the new federal law, handling a pure bred dairy herd, harvesting and marketing apples, regulations necessary for production of sanitary cream for butter making, the place of poultry on the farm, brooding and feeding young chicks and how to grow vegetables.

Pennsylvania.

Details of organization of the legislature of Pennsylvania were only completed this week and it will probably be a fortnight before the general policy of the session will develop. From present indications there will be a pronounced political slant to most of the proceedings owing to factional differences within the dominant party.

Commissioner James Foust is anxious to secure the passage

Staff Correspondence

of bills clarifying certain portions of the *cold storage* act of 1913. In this endeavor he will have administration backing. It is expected that an effort will be made to change the storage periods and to ease some of the restrictions which affect the commission men who voiced objections at the session of 1915.

Commissioner Foust will also ask that the act governing the sale and handling of *rotten eggs* be amended so as to require a state license for establishments dealing in this product.

Supplemental to the building code will be a bill, backed by the dairy and food authorities, to insure *sanitary conditions* in the manufacture, preparation, handling and display and sale of foods, including retail stores. This proposed law has been much discussed in conventions and at the capitol and will be offered as a means of bringing stores up to standards. Pennsylvania food factories pride themselves upon cleanliness, as do the jobbing houses and many of the grocery stores, but there are sufficient "holes in the wall," as they are termed, to give a bad impression generally.

James Sweeney, chief of standards, in his annual report, comes out with a strong demand for sale of meats wrapped in various coverings by *net weight* of meat. Some wrappings he estimated weigh two to four ounces. A bill to cover this case will be presented.

In regard to his plan for a standard loaf of *bread*, discussed last month, he suggests that the bread sold wrapped bear the net weight on the paper and that bread sold unwrapped bear a tag. In a number of places throughout the state the six-cent loaf has been established, but in other towns there have been reductions in size and maintenance of the five-cent price. In some places bakers have been successful in getting customers to take hold of the ten-cent loaf as the better proposition.

The report of the inspectors of *weights and measures* for the fiscal year ending November 30 shows that 14,967 weighing or measuring devices were found in need of adjustment and that 33,010 were condemned as wholly unfit for use, while 21,294 packages of food were condemned because they did not contain net weight marks. The inspectors brought 193 prosecutions and in every case fines were imposed. Of milk jars there were 8,539 condemned out of 876,177 inspected. Total inspections of weighing and measuring devices were 481,500 and of containers of all kinds 1,114,162. Both lines of work established records.

Summaries of the reports of the 71 *cold storage warehouses* operating in Pennsylvania under the state license law as issued by Commissioner Foust show that only 40 held any eggs on January 1 and that 39 held butter. The eggs held in storage on that date were 2,175,992 dozens against 12,220,857 dozens on October 1, heavy shipments for export and delays in arrivals of southern eggs having depleted the stock and caused some apprehension as to winter supply. Butter in storage on January 1 was 5,069,830 pounds against 9,555,966 on October 1; poultry, 4,135,511 against 1,931,423; game, 46,384 against 8,738; beef, carcasses, 612,607 pounds against 64,953; parts, 1,674,387 against 1,043,455; hogs, 122,570 against 369,421.

There were 20,000 *sheep* placed on Pennsylvania farms last year, the total number in the state being now 812,000, and farmers are asking for more. The value of the sheep per head has advanced from $1.60 to $2 in a year.

Results of the last test made by the state of *flour* show that only five samples out of 160 bought in the open market contained nitrites or had been bleached. All were manufactured in states other than Pennsylvania.

The high price of *eggs* has caused the state and municipal authorities considerable trouble in preventing the sale of cold storage eggs as fresh. These violations of the law have been occurring largely in Philadelphia and have caused much annoyance, as they are in provision stores in industrial districts. In every case the retailer who got into trouble was fined.

Statistics compiled on the *honey* product of Pennsylvania

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Gives better satisfaction than 75 per cent of butter used. Cost one-third less. Try it and be convinced. Order a package from your dealer.

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Lowers the Butter Bill without the sacrifice of quality.

Famous throughout thirty states as a Pure, Wholesome Delicious Spread for Daily Bread.

If your dealer does not handle "COLUMBUS" write us direct.

CAPITAL CITY DAIRY CO.

Columbus, Ohio

First Quality Margarine Churners for Thirty-Three Years

Staff Correspondence

show that in 1916 it was valued at $1,050,000, the demand being reported greater than ever known before. A state appropriation of $10,000 for systematic apiary inspection is proposed.

The Tri-State Commission, representing Pennsylvania, New Jersey and Delaware, which investigated the conditions attending the *milk supply*, has reported in favor of grading of milk, systematic efforts to obtain more co-operation among herd owners, making the transportation of milk a public utility, publication of weekly reports of receipts of milk in large cities by the shipping and railroad people, more effort to dispose of surplus stock by encouraging butter, cheese and evaporation and condensing plants and dairy inspection. The report gives the result of several hearings and declares that the cost of production can be cut if the herd owners will eliminate "boarders" among their cows and take scientific advice. The proposed dairy inspection, which is to be under the State Live Stock Sanitary Board, will carry a license of $1. Wide authority to secure improvement in dairy conditions and in handling stations will be conferred. The bill carrying it will be a code for dairying.

Establishment of a bureau of marketing with appropriation to take care of half a dozen field agents to convince farmers of the importance of *co-operative selling, grading, handling and routing* is proposed by the State Commission of Agriculture. During the last year over 30,000 farmers were addressed on the subject and probably 150 organizations effected, state experts giving instruction in grading and packing. The railroads arranged car service and sent agents to give pointers on routes. More sales in car load lots were made by Pennsylvania farmers last year than ever before, a large percentage of the potato crop being sold in that manner. Farmers' co-operative creameries have been organized under state auspices in Lancaster, York, Delaware, Bradford and several other agricultural counties.

According to the State Department of Agriculture's *poultry* experts, the poultry of Pennsylvania will be 40 per cent less in number this spring than last year owing to the heavy sales made by farmers during the fall in order to avoid keeping at the high cost of feed and the attractive prices offered for large lot sales.

Pennsylvania's first statistics on the *pear crop* show 494,560 bushels raised during 1916 and hundreds of new trees set out.

Further attention is to be given to the *market gardening* enterprises in the state by the Department of Agriculture and it is now planning to extend to the truck gardens and farms the scientific inspection which has built up the orchards of the state. An appropriation of $45,000 for a survey of farming, including cereal, market gardening, berries and the like, as distinct from orchard inspection has been asked. Experiments to increase yields of various crops will be carried out and probably twenty experts visit farming regions.

The state dairy and food division's issue of *oleomargerine* licenses for the new year has broken records, as did its receipts from that source during the year just closed. A bill to reduce the licenses for retail is to be presented by labor organization men.

South Dakota.

The new prohibition bill is of vital interest to dealers in *extracts* and *essences*. It has been drawn to cover the constitutional provisions for prohibition which were adopted by the state at the last election. The bill, in describing prescribed products, contains a provision that the term "intoxicating liquors" shall include "every other liquid, liquid mixture or compound containing alcohol, and which mixture is potable or capable of being used as a beverage, whether the same is a proprietary medicine or patented." At the end of the act is a section which provides: "Nothing in this act shall be construed, or shall operate to prohibit or regulate the manufacture, importation, sale or keeping for sale for other than beverage purposes by any person, firm or corporation of any bona fide medicines, toilet articles, extracts, tinctures, preparations or similar compounds containing alcohol,"

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providing the same are non-potable and are unsuitable for beverage. It will be over the possible latitude which this allows the average dealer in essences and extracts that there will be a demand for definite construction.

Another legislative movement backed by the governor is that for the creation of the office of *market commissioner* for the state, with the appointment of an officer to look after marketing conditions of all farm products and to keep the farmers of the state posted as to the best time and place for the marketing of their products so as to secure the highest prices therefor.

Tennessee.

Among the ten prosecutions brought by Commissioner Eskew for January that of C. F. Ottenville, grocer and veterinarian, was of somewhat unusual nature. In the words of the *Nashville Banner* Ottenville discovered that his horse, a faithful nag which had been serving him a long time, was ailing. A veterinary was called and the complaint was diagnosed as a nervous breakdown.

Ottenville, who is very much devoted to the nag, couldn't see his way clear to part with the animal even for a minute, so instead of sending the suffering nag to a hospital, he made a little place in the rear of his store near the meat rack, where the animal was made as comfortable as possible. No patient in any hospital was ever given any more careful attention.

Commissioner Eskew sent Inspector Medearis to Ottenville's place, where he was royally received, and with apologies for his store being so dirty. Ottenville began to show him around. The inspector found things in pretty bad shape, but when he encountered the meat rack he was astounded. There stood Ottenville's horse, which greeted the inspector with a friendly neigh, with as much as to say: "Believe me, bo, I think I'll have another nervous breakdown after getting such treatment as this."

Inspector Medearis almost laughed himself to death at the situation. He had heard of bulls in china shops, but never a horse in a grocery store, so he accordingly swore out a warrant against Ottenville, charging the grocer with violating the statute governing the sanitation of groceries.

Virginia.

"When any person pays his money for foodstuffs," says Commissioner Purcell, "there should be no doubt in his mind as to what he is buying." At the time that the federal laws affecting the manufacture and sale of *potted meats* were adopted by the General Assembly of Virginia it empowered the Dairy and Food Commissioner to make such additional regulations as he might deem proper for the operation of such laws. Since the labels for canned meats, required under the federal law—"Potted Meat Products" and "Passed for Sterilization"—do not fully indicate the nature of the product, Commissioner Purcell has notified the packers that the Dairy and Food Department will enforce a regulation requiring all potted meats offered for sale in Virginia to be marked in such a manner as to indicate the exact nature of the contents of each can.

Four hundred bags of dried, rancid and wormy English *walnuts* were recently seized by the direction of the commissioner. These nuts were purchased from peddlers by dealers in Norfolk and Richmond at a figure 50 per cent below the prevailing price. When the case was heard in Norfolk a fine was imposed upon the firm handling the consignment there and the walnuts ordered destroyed. In Richmond the dealer was merely given a profunctory warning against such practices. Later Commissioner Purcell discovered that the Norfolk firm was preparing to ship the walnuts in question to New York, and he thereupon seized the nuts held by both the Norfolk and Richmond dealers under the federal law regarding interstate shipment of foods unfit for human consumption. After a conference with the dealers, however, the walnuts seized in both cities were shipped to New York, where there are facilities for reclaiming such of the walnuts as are good.

Buy this syrup and purity is sure

Always say "Log Cabin" in buying syrup. You're sure then of syrup not only of choicest flavor, but of choicest purity, highest quality, full measure.

Sold by good grocers—everywhere

The Towle Maple Products Co.
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There's Only One Spread for Daily Bread

JELKE
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MARGARINE

is eaten with satisfaction at every meal. Always the same fine flavor—the same delicious taste, the relish and enjoyment there is to a pure, wholesome appetizing food.

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RUMFORD
The Wholesome
Baking Powder

A scientific preparation being the result of extended research by the celebrated chemist Prof. E. N. Horsford, for many years Prof. of Chemistry in Harvard University.

Dietetically speaking, Rumford is without fault; as a leavening agent it is perfect; as a keeper it has no superior.

DOES NOT CONTAIN ALUM

Its Purity is Unsurpassed.

Staff Correspondence

Wisconsin.

The legality of the law under which Commissioner George Weigle seeks to prevent the sale of Mrs. Price's *canning compound* will be tested in the courts. Attorney General Walter C. Owen has announced that he has started an action against a dealer in Kenosha by the name of Ole, who sold the product. The officials of the company which manufacture the product have been attempting for some time to secure a test of the law in the Wisconsin courts. They claim that Commissioner Wiegle is incorrect in his ruling and that the sale of the compound is permissible under Wisconsin statutes.

A bill prohibiting the use of *trading stamps* and providing a penalty was introduced in the Wisconsin legislature on Wednesday, January 17, by Assemblyman I. J. Kvam of Rice Lake. The bill contains the usual provisions made use of in this connection, making no exception of manufacturers' coupons. Its enforcement is placed with the Dairy and Food Commissioner.

There has been a noticeable decrease in the inaccuracies of scales and measures, according to the annual report of the *weights and measures* department.

The total number of weighing and measuring appliances tested by state inspectors in 13,523 places of business is 139,898 and of this number 15 per cent were found to be incorrect. The total number of weighing and measuring appliances tested by the thirty-six city departments of weights and measures is 131,377, of which number 5 per cent were found incorrect. The total number of office tests for the year is 30,310.

Over 13,000 stores were visited by the city sealers and 57,249 packages reweighed or measured. Of this number 3,576 were short. In the smaller villages and towns state inspectors of weights and measures visited 2,653 places of business reweighing and measuring 10,846 packages, of which number 1,215 were under weight or measure. "In most instances the shortage was slight and the dealer was directed to make good the shortage," says the report. "Usually this acted as a warning to the merchant, but in some cases it was necessary to resort to the courts before the dealer realized that he was violating a state law."

Assemblyman Scheiwtz of Milwaukee on Wednesday, January 17, offered a joint resolution in the assembly asking for the *federal regulation of cold storage plants.*

State regulation of cold storage plants is provided for in a bill offered on Wednesday, January 17, by Assemblyman John P. Donnelly of Milwaukee. The bill places the administration of the law in the hands of the State Dairy and Food Commissioner.

Cultivation of the Dasheen Increasing.

The dasheen, a root crop introduced into this country from Trinidad within recent years by the U. S. Department of Agriculture, is now grown by a considerable number of farmers and truckers in the South, and promises to become a valuable member of that group of domestic vegetables which furnish starchy foods. The new vegetable is closely related to the taro, which is an important factor in the food supply in portions of the tropics. The dasheen is itself primarily a tropical plant. It can be grown successfully, however, not only in the warmer portions of Florida, but in other sections of the South as far north as South Carolina. The value of the dasheen, it is believed, will be as a crop supplemental to rather than a substitute for the potato.

In food value the dasheen is comparable to the potato, though it contains a smaller proportion of water and a greater proportion of protein, starch, and sugar than the latter. The new vegetable may be prepared for the table as potatoes usually are, or may be made into flour and used in baking. The tender shoots forced from the large corms may be prepared like asparagus, and make a pleasing dish in that form. The dasheen is a good shipper and is handled by the carriers at the same freight rates as potatoes. The vegetable has already found its way into a number of northern markets.

United States Department of Agriculture

Bureau of Animal Industry

In the Service and Regulatory Announcement for December there were the following paragraphs of interest to food manufacturers and others in the industry:

Salt Should Be Clean.

All salt or solutions thereof used in direct contact with meat or meat food product should be clean and handled in a cleanly manner. The presence of a small amount of insoluble mineral matter in salt is not alone sufficient to prohibit its use, provided the salt is from a clean source and has been properly handled. However, when inspectors are familiar with insanitary conditions surrounding the source of a salt or have knowledge that it has been handled in an unclean manner, its use in the preparation of meats and products should be prohibited.

Tare and Net Weight.

The word "tare," as used in connection with statements of the weight placed on containers of meat or meat food products, is held to represent the weight of all containers, including immediate wrappings and paper linings as well as outside or shipping containers. The word "net" is held to represent the weight of the meat or product exclusive of any wrappings or linings. Accordingly, in instances where hams, sides, strips of bacon, loins of pork, and similar cuts of meat are wrapped with paper or cloth, the words "tare" or "net" should be omitted from both shipping and true containers, unless the statement following the word "tare" includes the weight of the wrapping and the statement following the word "net" represents only the weight of the meat exclusive of the wrappings.

When wrapped meat or product, which was held in Circular Letter 525 not to be in package form, and in respect to which a petition for a modification is now pending before the department, is placed in outside or shipping containers, no objection will be offered, previous to a conclusion being reached on such petition and notice of the conclusion being given to the application to such shipping containers of unmodified figures representing the weight of the containers exclusive of immediate wrappings and paper linings, or such figures preceded by the terms "box," "barrell," or "basket," as the case may be. Unmodified figures representing the weight of the contents including immediate wrappings may also be applied to such shipping containers.

The foregoing should not be construed as authority to omit the statement of the net weight from containers of food held to be in package form.

Post This in Your Shipping Room.

Tests at the Forest Products Laboratory, at Madison, Wisconsin, indicate that by the use of four additional nails in each end an increase of 300 per cent in the strength of canned-food boxes is secured.

BORIC ACID SOLUTION

To make a Boric Acid solution with Powdered Boric Acid requires time and patience. This difficulty is readily overcome if one will order

GRANULATED BORIC ACID

Twenty Mule Team Brand
U. S. P.

The granules being porous absorb water readily so that almost instantly one has a saturated solution. When ordering, specify:

TWENTY MULE TEAM GRANULATED BORIC ACID

As all Boric Acid put up in packages under that brand is guaranteed to be absolutely

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PACIFIC COAST BORAX COMPANY
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This fresh, clean, sweet, pure milk is evaporated to the consistency of cream, sealed airtight and sterilized. Not only is it pure and healthful, but is absolutely *safe*.

Try it in your cooking and baking. You will quickly realize that at last you have found *the* milk for your home—the only milk you need.

Our new recipe book gives over 100 everyday and special recipes. Write for a free copy to Carnation Milk Products Co., 165 Stuart Bldg., Seattle, U. S. A.

Ask your grocer—"the Carnation Milkman"

Carnation Milk
Clean Sweet Pure
The answer to the milk question
—From Contented Cows

The finest preparation of its kind on the market today is The Great Food Drink

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Be sure that you ask for and get McAVOY'S. The only MALT MARROW that there is.

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Never surpassed in wholesomeness, leavening or keeping qualities. Immense output. Low price.
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MANUFACTURERS OF
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MAIN OFFICE
Sheffield and North Aves.
CHICAGO, ILL.

A Packer's Creed.

Enthusiasm is the *dynamics* of your personality. Without it, whatever abilities you may possess lie dormant; and it is safe to say that nearly every man has more latent power than he ever learns to use. You may have knowledge, sound judgment, good reasoning faculties; but no one—not even yourself—will know it, until you discover how to put your *heart* into thought and action.

A wonderful thing is this quality which we call enthusiasm. It is too often underrated as so much surplus and useless display of feeling, lacking in real substantiality. This is an enormous mistake. You can't go wrong in applying all the genuine enthusiasm that you can stir up within you; for it is the power that moves the world. There is nothing comparable to it, in the things which it can accomplish.

We can cut through the hardest rocks with a diamond drill and melt steel rails with a flame. We can tunnel through mountains and make our way through any sort of physical obstruction. We can checkmate and divert the very laws of Nature, by our *science*.

But there is no power in the world that can cut through another man's mental opposition, except *persuasion*. And persuasion is reason plus enthusiasm, with the emphasis on enthusiasm.

Enthusiasm is the art of high persuasion.

And did you ever stop to think that your progress is commensurate with your ability to move the minds of other people? If you are a salesman this is pre-eminently so. Even if you are a clerk, it is the zest which you put into your work that enkindles an appreciation in the mind of your employer.

You have a good idea—don't think that other people will recognize it at once. Columbus had a good idea, but he didn't get "across" with it without much of this high persuasion.

If you would like to be a power among men, cultivate enthusiasm. People will like you better for it; you will escape the dull routine of a mechanical existence and you will make headway wherever you are. It cannot be otherwise, for this is the law of human life. Put your soul into your work, and not only will you find it pleasanter every hour of the day, but people will believe in you just as they believe in electricity when they get in touch with a dynamo.

And remember this—*there is no secret about this "gift" of enthusiasm.* It is the sure reward of deep, honest thought and hard, persistent labor.

J. Ogden Armour.

Reprinted from January, 1917, Armour Magazine.

United States Tea Experts.

The Secretary of the Treasury has reappointed the following tea experts on the United States Board of Tea Experts for the coming season:

J. J. McNamara, Brooklyn, N. Y.; H. G. Woodworth, Boston, Mass.; Arthur T. Hellyer, Chicago, Ill.; C. E. Wyman, St. Paul, Minn.; E. R. Rogers, Tacoma, Wash.; George W. Caswell, San Francisco, Cal.; and George F. Mitchell, Charleston, S. C. (supervising tea examiner, Treasury Department).

It will be noticed from the location of the different members of the board that there are two representatives from the West, two from the Central United States, two from the East, and the seventh, the direct representative of the Government, from the South. As the board is now constituted there are three members from the importing trade, three from the jobbing and wholesale trade and a direct representative of the Government.

At the first meeting, held January 29, 1917, at 10 a. m. at the U. S. Appraiser's Stores, 641 Washington street, New York, N. Y., the tea standards which go into effect on May 1, 1917, by which the purity, quality and fitness for consumption of all teas entering the United States are measured, will be selected and recommended to the Secretary of the Treasury for approval.

A M

Hamburger Steak Yeast Fermentation

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THE AMERICAN FOOD JOURNAL

VOLUME TWELVE
NUMBER THREE

Chicago, March, 1917

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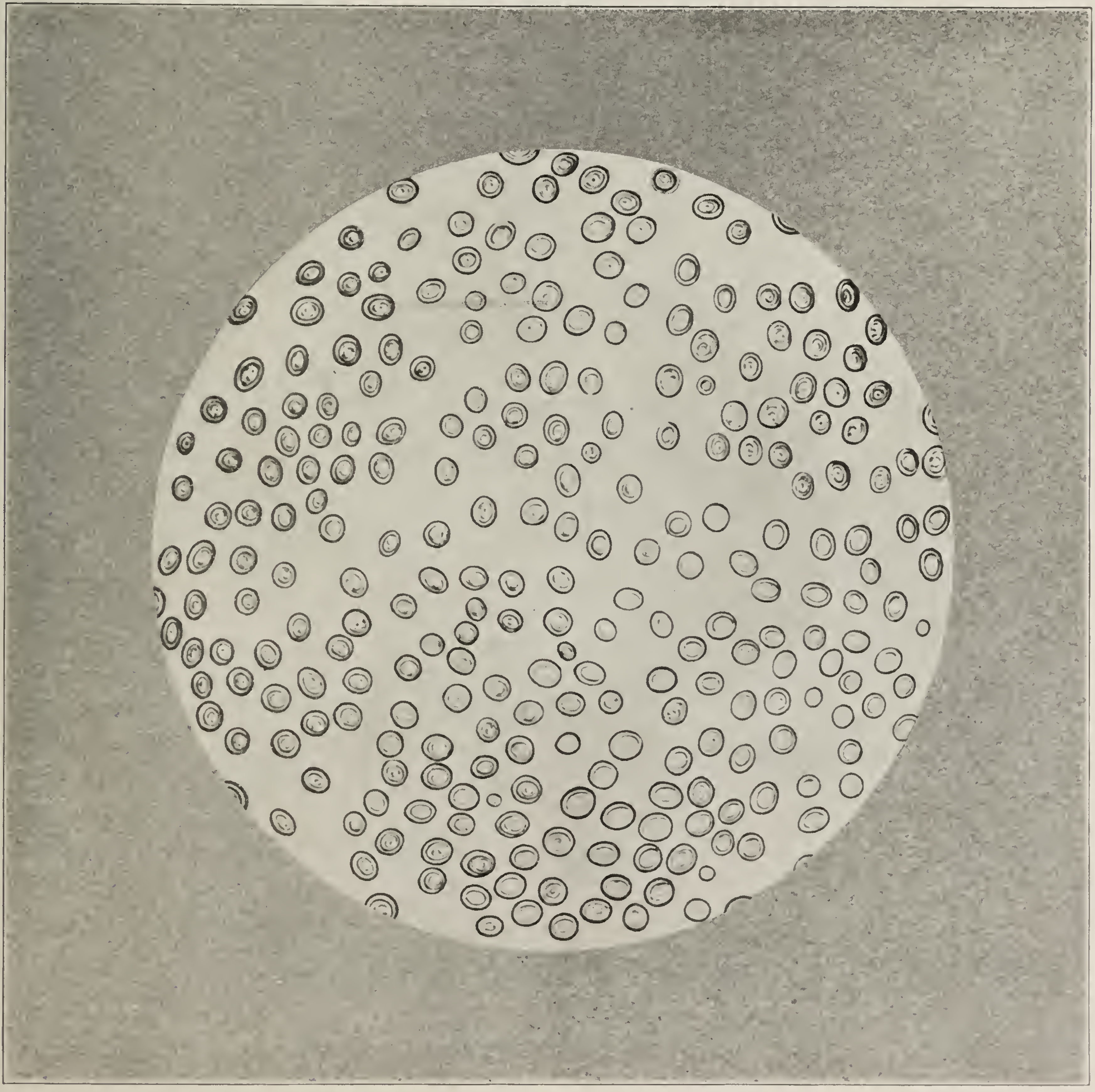

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Yeast Cells Under the Microscope

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Price's Tropikid Says—

Dr. Price's Vanilla Extract

is made from

The Finest Mexican Vanilla Beans

It is, and has been for 63 years,
a guaranteed pure food product

The same high quality is found in Price's

Lemon, Orange, Raspberry and Strawberry

PURE FRUIT EXTRACTS

Price Flavoring Extract Co., - Chicago, Ill.

Eat Plenty of Bread—It's Good For You

The consumption of Bread in this country is constantly increasing.

The Wholesomeness, Healthfulness and Economy of Bread make it the "Perfect Food."

Fleischmann's Yeast Makes the Best Bread.

THE FLEISCHMANN COMPANY
FLEISCHMANN'S YEAST

THE AMERICAN FOOD JOURNAL

There is no higher art than that which tends toward the improvement of human food.—*Henry Ward Beecher.*

ROBERT GORDON GOULD, *Editor*

Vol. XII MARCH, 1917 No. 3

The Chemistry of Food Manufacture.

It is with pleasure that announcement is made of a new series of articles to run regularly in this periodical commencing with the May issue. This series will be entitled "The Chemistry of Food Manufacture," and will be furnished by Mr. Washington Platt, who is in charge of the research laboratory of the National Biscuit Company at New York. Mr. Platt is this winter delivering a series of lectures upon this subject at Columbia University, and the articles to appear in the Journal will be based upon those addresses. The entire food industry will be covered during the coming months, the chemical aspects of each branch thereof being explained in simple and yet strictly scientific fashion. The articles will be of special interest and, no doubt, constructive help to food manufacturers and to food inspectors.

Infantile Paralysis.

In view of the possible connection between diet and the spread of infantile paralysis, that dread disease, may, perhaps, be considered a proper subject for discussion in a journal devoted to food. To those of our readers who have little ones in their homes we would commend the February issue of the *American Journal of Public Health,* published at Concord, New Hampshire. They will find therein a most interesting round-table discussion of *epidemic poliomyelitis.* It consists of twenty-four pages of contributed matter coming from various physicians who were in the thick of the fight last summer and whose opinions are both interesting and instructive. Expert opinion seems to agree that as the scourge ran its course in the east last summer, the middle west is probably in for an approximation the coming summer of the epidemic conditions which obtained in the east last summer.

Water.

There is a certain amount of truth in the adage to the effect that those things which are nearest to us we often fail to perceive. Many a long hour is spent in an effort to prove the existence in a food of a trace of some forbidden substance or other, the physiological effect of which is, at best, or at worst, an open question when the local water supply is fairly teeming with bacteria of most dangerous sort. Water is used so freely and so universally that very few of us consider the possibility of its contamination and fewer still investigate the matter. Commissioner Barnard of Indiana, as our staff correspondent relates, has recently been investigating the water supply of several Indiana towns and is contemplating further work along this line. It would be interesting to know how many food commissioners could offhand state the condition of the potable water supply in their respective states.

Food Reviews.

One of the most valuable features of the average literary periodical is its criticism of current literary productions, commonly known as "book reviews." The editorial staff is presumed to have a sufficiently wide knowledge of literature to entitle such "book reviews" to considerable, well merited respect. That being the case it is with some degree of assurance that announcement is now made of a department to appear henceforth in this JOURNAL under the heading "Food Reviews." Herein will be printed brief, scientifically accurate and quite unprejudiced criticisms of food products new to the American market or for any other reason of more than usual interest. As this is a new feature and a novel one it is still too early to state definitely just what will and will not be included in such reviews. Suffice it to say that they will be of real service to food inspectors, dietitians and, perhaps more than all others, the wholesale and retail grocers.

No Wonder They Laughed.

The disingenuous, not to say dishonest, reasoning back of the present oleomargarine law (the so-called Grout Bill of 15 years back) is being brought out vividly these days in the Senatorial discussion of the Underwood amendment to the revenue bill. For instance:

Scene—The Senate Chamber, Washington, D. C.

Time—Wednesday, February 21, 1917.

Dramatis Personae—Hon. James W. Wadsworth, Jr., of New York, Hon. William Hughes of New Jersey.

Mr. HUGHES: "* * *In other words they *(the butter men)* do not want the margarine men to have the privilege of making their product look like butter."

Mr. WADSWORTH: "Mr. President, the Senator from New Jersey has struck very close to the truth underlying the passage of the Grout bill."

Mr. HUGHES: "They are absolutely frank about it, I will say that to the Senator."

Mr. WADSWORTH: "They are very frank about it. They claim that the insertion of coloring matter in a perfectly healthy article of food such as oleomargarine should be unlawful and a crime, while the insertion of the same coloring matter in another perfectly healthy article of food is an incidental virtue." (Laughter.)

The raison d'etre of this Journal.

The subjoined clipping from a recent issue of the New York *Journal of Commerce* explains far better than could a page of impassioned rhetoric from this office the reason for the existence of The American Food Journal.

THE MODERN USE OF "YEAST FOOD"

SECRET OF "PLASTER OF PARIS IN BREAD" AT LAST EXPLAINED.

What the Use of Certain Chemical Salts Has Done to Improve Bread and Reduce Cost of Leavening Agents—The Results of the "Arcady" Process Shown in Tests.

> There has been for some time past—in fact ever since a distorted account of the same leaked out incidental to a hearing in the Massachusetts Legislature two years ago—more or less agitation over the rumor that commercial bread bakers are using "plaster of paris" in bread. While in a general way it is not correct, technically it is true that modern bakers have found remarkable improvement in their product from the use of yeast foods, in which there is a small proportion of calcium chloride, and the bakers have not had the wisdom to set straight in the public mind just what the facts are; hence the prevalence of a distorted version of the truth.
>
> But in an article in the "American Food Journal," H. A. Kohman, Ph. D., of the Mellon Institute of Pittsburg, where the process of using "yeast foods" was developed, tells all about it in detail. In part he says *(etc.)*

In this same connection the February 20th issue of *Chemical Abstracts*, Easton, Pa., contains the following paragraph:

> "**Feeding the yeast in bread making. H. A. KOHMAN.** Am. Food J. **12**, 35-8 (1917); cf. C. A. **10**, 2775.—The addition of Ca salts, to supply lime, of NH_4 salts to supply N, and of K_2CrO_4 to supply O, results in economies in yeast and sugar and improves the general character of the bread, including color, texture, expansion, bloom and flavor. Complete exptl. data are given in tables and graphs. G. A. Menge."

The *Journal of Commerce* reaches the lay reader, whereas *Chemical Abstracts* is the exclusive property of the highly technical professional man. A Journal whose contributed articles explain the food industry in terms sufficiently simple to warrant a metropolitan newspaper's devoting a couple of columns to a partial reprint of one such article, and at the same time sufficiently scholarly to have it included by the official organ of the American Chemical Society in the permanent literature of the food industry has cause for justifiable pride.

Saccharomyces Cerevisiae.

Those who have read the technical articles on the manufacture of the various food products so far printed in this Journal may have noticed the progressive nature of the series. In the refining of salt one is working in inorganic chemistry. Salt is a mineral and its handling is no more difficult than is the handling of any inorganic body. In the case of flour, the next in the series, the scene shifts to the much more complex domain of organic chemistry—the chemistry of the compounds of carbon — of which cereal chemistry is an important part. In butter-making an even more intricate field is involved—that of both milk chemistry, which is organic, and bacteriology. The present article, dealing with yeast, is descriptive of an industry lying entirely within the realm of microörganisms—quite beyond the range of unaided vision. Yeast is defined as a plant but one of exceedingly small proportions. Smaller than molds, although larger than bacteria, the yeast plant must be studied through a high-power microscope. And it has been so studied to good effect. The yeast manufacturer of today might be likened to a gardener, the plants he tenderly cherishes being on the average about 3/1,000 of an inch in diameter and extremely sensitive to variations—physical, chemical or biologic. Handled with intelligence, however, they repay many thousand-fold all the care and attention given them. The view shown on the cover is from a micro-photograph two inches in diameter in which each yeast cell is magnified about 1,000 times.. As the original negative was enlarged two and one half times to produce the five inch circle shown each cell is now magnified about 2,500 times as to size although not as to detail.

"Butter and Margarine" in the Senate.

Those who are concerned in the effort to secure sensible legal control of the manufacture and sale of butter substitutes will be interested to know that the fight in the Senate seems at one time to have centered around the February issue of The American Food Journal. On Thursday, February 22d, the Honorable Charles S. Thomas, senator from Colorado, made most effective use of that issue of this Journal. Early in his speech the Senator read into the *Congressional Record* our digest of the margarine laws in England, Holland, Belgium, France, Germany, Norway and Sweden and Denmark, after properly acknowledging that he was reading—

> "from The American Food Journal, and from its February number, on p. 82, which prints a digest of the laws of the leading countries outside of our own."

This legal abstract was almost immediately followed by a citation, prefaced by—

> "I read from The American Food Journal,"

of the statistical matter concerning the consumption of margarine in this country and in foreign countries, the Senator commenting upon various of our statements as he went along. When discussing the question of the purity of butter, Senator Thomas stated:

> "In view of what has been said and reiterated so many times upon the subject (*purity*) let me call attention to an article in The American Food Journal by its editor, Mr. Robert Gordon Gould, regarding it. He says: 'All the butter made in creameries' (I read from p. 84 of The American Food Journal for February),"

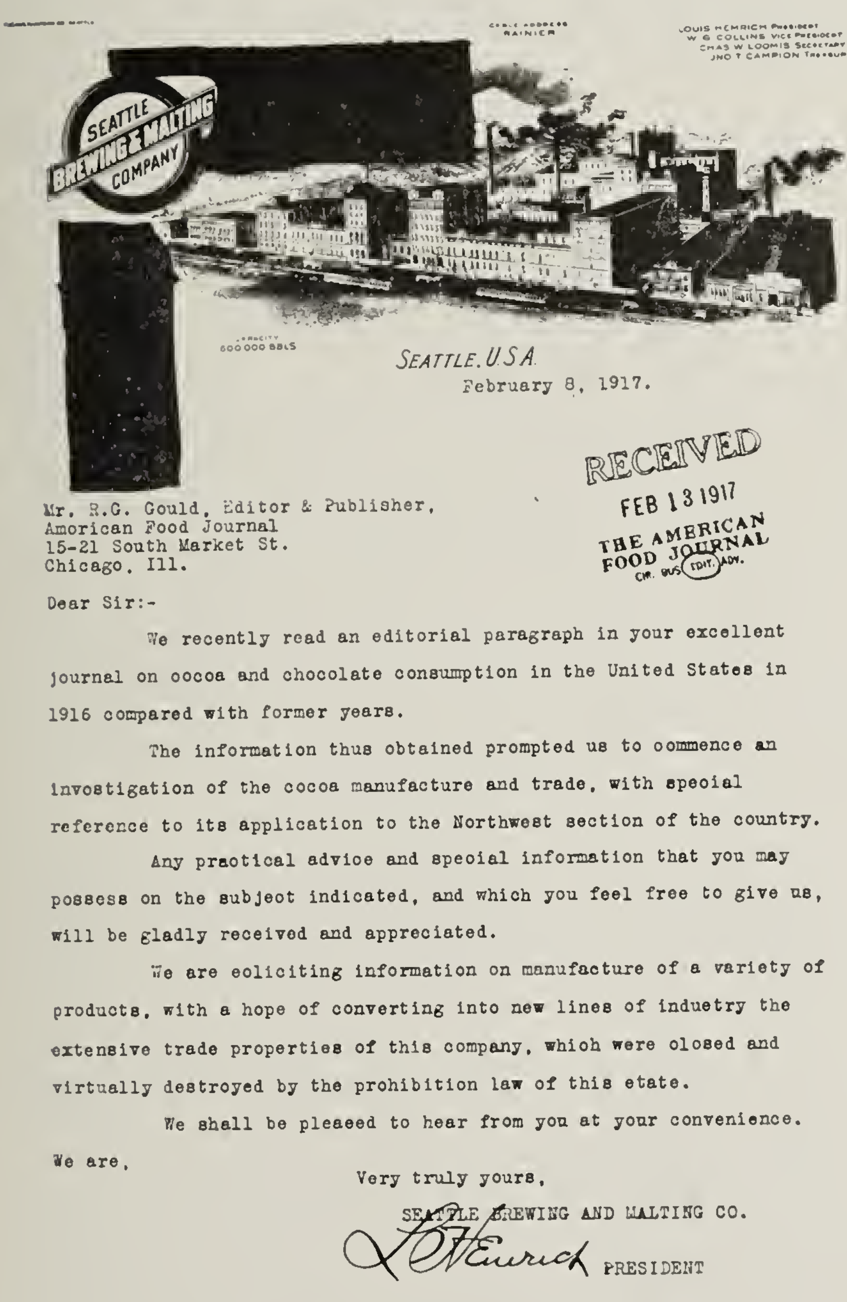
which was followed by our general summarization of the various types of butter on the American market. Senator Thomas then asked his confreres to turn to page 83 of our by this time much-bethumbed February issue, and read with him our abstract from *McKay and Larsen's Principles of Butter-Making* concerning the low esteem in which our butter is held in the English market. He then made the remark:

> "I might read other abstracts from this article, which is a very illuminating one, but I do not think it is necessary,"

although before dropping the subject he asked permission to read from page 89 of our February issue our description of the renovation of bad butter. During the course of Senator Thomas's talk, he was interrupted many times, and it is gratifying to note that not a single Senator questioned any of our statements which were being read into the *Record*. That is perhaps natural inasmuch as the article referred to was put together with scrupulous regard for absolute truthfulness. It is impossible to tell the truth regarding present-day butter and margarine and be considered other than an advocate of the latter.

King Alcohol Is Dead: Long Live King Theobromine.

In days of old when the reigning sovereign died his funeral obsequies were almost, if not quite, simultaneous with the induction into office of the heir apparent, the populace voicing their grief incident to the outgoing administration, and their felicitations to the incoming administration, all in one breath, with the words, "The King is dead: long live the King." Similarly, do we in this country admire the pluck of a business concern which, being legally deprived of its means of gaining a livelihood, casts about instanter for other, and still legal, means to that end. The state of Washington has hung crepe upon the doors of the Seattle Brewing and Malting Company, as is clearly evidenced by the accompanying illustration. That company wants information as to the manufacture of cocoa products. We have done what we could to be of service. Perhaps some of our readers can do more. Incidentally, cocoa contains 1.5 per cent of theobromine—an alkaloid. Who knows but that by this time next year theobromine may be under the ban. They are gunning for caffeine in Coco-Cola, although not in tea or coffee, even now in southern legislatures. Our friends in Seattle should have a care lest their efforts to escape their present dilemma throw them into even worse confusion.



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SEATTLE, U.S.A.

February 8, 1917.

RECEIVED
FEB 13 1917
THE AMERICAN
FOOD JOURNAL
CIR. BUS. EDIT. ADV.

Mr. R.G. Gould, Editor & Publisher,
American Food Journal
15-21 South Market St.
Chicago, Ill.

Dear Sir:-

We recently read an editorial paragraph in your excellent journal on cocoa and chocolate consumption in the United States in 1916 compared with former years.

The information thus obtained prompted us to commence an investigation of the cocoa manufacture and trade, with special reference to its application to the Northwest section of the country.

Any practical advice and special information that you may possess on the subject indicated, and which you feel free to give us, will be gladly received and appreciated.

We are soliciting information on manufacture of a variety of products, with a hope of converting into new lines of industry the extensive trade properties of this company, which were closed and virtually destroyed by the prohibition law of this state.

We shall be pleased to hear from you at your convenience.

We are,

Very truly yours,

SEATTLE BREWING AND MALTING CO.

L Hemrich PRESIDENT

Canned Corn in Oklahoma City.

There are but few things more subversive of the good that can be accomplished by a just law than inefficiency in its administration. Despite what may or may not have been said by interested parties previous to 1906 it is now recognized by those who manufacture or deal in foods that legal control of that traffic is beneficial. When one considers the advancement in manufacturing methods and in the methods of handling manufactured foods which has been the direct result of the detailed study of food rendered necessary by the enforcement of food laws one can easily believe that the manufacturer has benefited from their enactment quite as much as, if not more than, has the public. Generally speaking, the officials entrusted with the duty of enforcing the laws pertaining to food have been both fair in spirit and well grounded in their profession. The publication, therefore, under the title "A Little Knowledge Is a Dangerous Thing" of a recent abortive prosecution in Oklahoma City is justified—not because such a travesty is typical of the law's enforcement, but because such a state of affairs simply cannot be tolerated and publicity is a most effective method of getting action.

Hyman Builded a Scaffold for His Friend Mordecai.

As long ago as November, 1915, this Journal printed an editorial paragraph in which appear the words

> "It will behoove certain of our friends engaged in the administration of food control in a number of states to give serious thought to the gathering storm in the butter and dairy world."

The next month, December, 1915, the subject of Federal inspection of creameries was treated editorially, the closing paragraph being

> "Indeed, no man who has eyes and will see can ignore the handwriting on the wall. Sooner or later the Federal inspection of butter shall become a fact. Now is the time for the far-seeing, broad-visioned creamerymen to get together and lead the movement for the rehabilitation of their industry."

The cloud, at that time "no larger than a man's hand," now overcasts the entire sky toward which the reactionary element of the butter industry hold up their hands in mute appeal—not so very mute either, if one may judge their activities by the present appearance of the *Congressional Record*. The "handwriting on the wall" in like manner has become an adjuration in letters of fire to *"clean up or shut up."* All who are conversant with the butter industry know full well that the vulnerable spot in the armor of the butter men is the question of sanitation in butter making. That this point has been dilated upon by those who manufacture margarine is incidental. It simply shows that those in the latter industry know where to aim. Apart from what may or may not happen in regard to the legal control of the manufacture and sale of margarine, the butter served the American people *must* be made under better conditions than at present obtain. The most severe critic of American butter is the United States Government. No longer ago than February 12, the United States Department of Agriculture released for publication a statement to the following effect:

> "In the case of hogs from certain localities, especially some of the dairying sections, however, over 25 per cent, or one

> out of four hogs slaughtered, had the disease (*tuberculosis*). * * * The two principal ways of preventing hogs from becoming tubercular are by keeping them away from tubercular cattle, and by cooking or pasteurizing all skim milk and cooking all garbage before it is fed to the hogs. * * * Raw milk of any kind from a creamery is particularly dangerous for hogs, because if there is but one tubercular herd on the creamery route the milk from this herd may affect all the skim milk collected at the factory. This explains why tuberculosis is most common in hogs in dairy regions where milk is taken to a central creamery and raw skim milk brought back to the farm from the general stock."

If skim milk from a creamery transmits tuberculosis to hogs, it is fair to assume that the whole milk from which the skim milk was derived may transmit tuberculosis to human beings. We need not rest with that assumption, however, as Professor H. A. Harding of the University of Illinois, speaking last fall at the Minneapolis Convention of Butter Makers, stated:

> "It has been demonstrated beyond any room for doubt that the action of the centrifugal separator tends to concentrate the germs of bovine tuberculosis in the cream so that they pass over into the butter. Careful studies have shown that they will remain alive in butter for three months or more under storage conditions. Butter made from raw cream is open to a very serious indictment from the standpoint of the public health."

It would seem that the prophecy uttered by this JOURNAL over a year ago is about to become a reality. On February 22, the Honorable Harry Lane, senator from Oregon, while going on record against the Underwood amendment, told his confreres in the upper house:

> "* * * All butter is not good; some of it is unfit for food; and there is no doubt that some of the cattle from which the cream is derived are tubercular. It is the duty of the Government to see—and perhaps right here in this bill would be a good place to provide a remedy for it; but, at any rate, in some bill it should be so provided—that butter be not tubercular and that the cattle from whose milk the cream is derived are free from tuberculosis."

On the following day the Honorable Asle J. Gronna, senator from North Dakota, in criticizing the Underwood amendment, said:

> "Now, if you are afraid that the butter and cheese and other articles produced on the farm are unwholesome, provide for Federal inspection, and I know that the farmers of the United States will welcome it. I know that they will be only too glad to have a Federal inspector inspect every pound of the product of the farm."

Both senators come from states largely interested in dairying, and it is to be presumed that they speak with the voice of authority. The principal activity of the National Dairy Union has been that of waging a relentless warfare against margarine. That powerful organization would be working to better advantage if it should notify all dairymen and creamerymen that the turn of affairs had rendered absolutely necessary a general clean-up in the butter making business and that until that could be brought about, the less said about margarine the better.

The Underwood Amendment

AT PRESENT there is a tax differential between uncolored and colored oleomargarine and, in consequence, an incentive to dealers to color oleomargarine, which has been sold to them as uncolored and upon which a tax of ¼ cent per pound has been paid. The sophisticated product is sold for butter at butter prices, and the act of sophistication being quite simple of accomplishment, it is extremely difficult for the Government to apprehend the offenders. One of the best features of the Underwood amendment is that it provides for the sale of margarine in packages no larger than 10 pounds, each package to be closed by means of a Government stamp, the breaking of which, except for the purpose of consumption of the margarine contained within the package, being made illegal. Its passage will in the estimation of the Treasury Department increase the revenue something like $3,500,000.

THE UNDERWOOD AMENDMENT.

Title V—Margarine Tax.

Sec. 500. That in lieu of the taxes now imposed by law upon the substances, mixtures, or compounds heretofore known as oleomargarine, and which shall hereafter be known and designated as margarine, or its equivalent descriptive word when manufactured for export to a foreign country, there shall be levied, collected, and paid a tax at the rate of 2 cents per pound, to be paid by the manufacturer thereof, which tax shall be represented by internal-revenue stamp or stamps so affixed to the respective "manufacturers' original packages," hereinafter provided for, as to seal them securely, so that said packages may not be opened without destroying the stamp or stamps affixed thereto; and it shall be unlawful for any dealer, knowingly and willfully, to break said stamps, or to knowingly have in his possession such packages upon which said stamps have been broken or otherwise defaced: Provided, That margarine may be packed in any form required and removed from the place of manufacture under such regulations as are now or may hereafter be prescribed for export to foreign countries, or for consumption upon vessels plying between ports of the United States and those of foreign countries, or for the use of the United States Government, without the payment of tax thereon or affixing stamps thereto.

Sec. 501. All margarine shall be packed by the manufacturers thereof in separate sanitary "manufacturers' original packages" of one-fourth, one-half, one, two, three, five, or ten pounds each, except as provided in section 500 of this act; and said "manufacturers' original packages" shall be packed in "shipping packages" containing not less than ten pounds each, upon each of which shall be plainly branded, stamped, or printed the word "margarine" and a label as follows: "Notice—The manufacturer of the margarine herein contained has complied with all the requirements of the law. Every dealer is cautioned not to break or deface the 'manufacturers' original packages' therein contained or the revenue stamp or stamps thereon." Upon each of "manufacturers' original packages" shall be plainly stamped, or printed the word "margarine," together with a caution notice as follows: "Notice—Every person is cautioned not to use either this package or the stamp or stamps thereon again, or to remove the contents of this package without destroying the stamp, under the penalty of the law in such cases."

Sec. 502. That in lieu of the special taxes or licenses now imposed by law upon manufacturers of, and dealers in, oleomargarine, there shall be, and are hereby, imposed annually special taxes as follows: Manufacturers of margarine shall each pay $600; wholesale dealers in margarine shall pay $60; retail dealers in margarine shall each pay $6.

Sec. 503. Margarine is here declared to be a food product; and, except as modified or repealed by this act, all the provisions of the existing laws relating to this product heretofore designated as oleomargarine shall continue in full force and effect, and all the general provisions of the internal-revenue statutes for the assessment and collection of taxes and licenses, and for seizures, forfeitures, and punishments for violations thereof, are hereby extended and made to apply to this food product, the taxes imposed by this act, and the persons upon whom imposed. The commissioner of the Internal Revenue, with the approval of the Secretary of the Treasury, is hereby authorized and required to make all needful rules and regulations to carry this act into effect. Nothing herein contained shall be construed to alter, amend, or repeal the provisions of the act of June 30, 1906, as amended, known as the meat food inspection act, nor the provisions of the act of June 30, 1906, as amended, known as the pure food and drug act.

Of Current Interest

Baking Powder Standard.

A referendum vote is being taken by mail among the various state food commissioners as to their attitude on the definition of baking powder recently published in this journal.

Changes in the Food and Drugs Act.

If current gossip can be believed, the food industry will soon be given an opportunity of passing upon twelve amendments to the Food and Drugs Act, which amendments have been formulated by those in whose hands is lodged the enforcement of this act. It is also reported that there will shortly be forthcoming from Washington a complete revision of the Food and Drugs Regulations.

Saccharine Case to Be Tried.

It is reported that the government will some time in April ask for a trial of its pending case against the Monsanto Chemical Company of St. Louis, manufacturers of saccharine. This is a misbranding case, three statements on the label being attacked by the government, namely, that saccharine is a "perfect sweetener," "healthful" and "positively harmless." To the first two of these the Monsanto Chemical Company has, through its attorneys Messrs. Lannen of Chicago and Lehmann and Rassieur of St. Louis, entered the plea of *nolo contendere*. Issue is to be joined on the third statement, that of whether or not saccharine is "positively harmless." This bids fair to be a most important case

American Trade With England Curtailed.

The *Official Gazette*, of London, Eng., supplementing the address of Premier Lloyd George, recently issued a list of articles the importation of which into England is prohibited, except under license of the board of trade, and including the following items:

Aerated, mineral and table waters, brandy, coffee, canned lobsters and salmon, food articles containing sugar except condensed milk, live quails, raw cocoa and preparations thereof, rum, raw fruits, except lemons and oranges and bananas, which are restricted to 25 per cent of the 1915 imports, soya beans, tea, tomatoes and wines of all kinds.

Colver Succeeds Hurley.

William B. Colver, a St. Paul newspaper publisher, and John Franklin Fort, former governor of New Jersey, were nominated by President Wilson today as members of the federal trade commission.

Mr. Colver is a democrat and succeeds Edward N. Hurley of Chicago, chairman of the commission, who resigned recently. His term will expire in 1920. Mr. Fort will serve out the unexpired term of George S. Rublee of New Hampshire, who was nominated by President Wilson when the commission first was appointed and served until last fall, but who never was confirmed by the senate because of the opposition of Senator Gallinger.

Mr. Fort is a republican and served as a judge before he became governor of New Jersey. During the present administration he has acted as a special envoy of the United States to the Dominican republic and later to Haiti.

Public Hearings Regarding Detained Imports of Foods and Drugs.

The Bureau of Chemistry, following requests that it publish, in its Service and Regulatory Announcements, notices concerning the detention of foods and drugs offered for import at ports of entry, because of the fact that they may be in violation of the Federal Food and Drugs Act, has called a public hearing at which those interested may state their views.

The hearing will be held on Tuesday, March 20, 1917, at 10 a. m., at the Bureau of Chemistry, 216 13th street, S. W., Washington, D. C. Those unable to attend the meeting are requested to present their views in writing, to the bureau, on or before that date.

The food officials desire particularly to obtain expressions as to the value of publishing information relative to detained products, as to the form such publication should take, and as to whether such publication would tend to injure a consignee who is importing food and drugs from abroad which he has had no opportunity of inspecting prior to their arrival and detention at the port of entry.

Status of the Underwood Amendment.

Senator Oscar W. Underwood of Alabama recently filed as an amendment to the Army and Navy appropriation measure the proposed method of controlling the manufacture and sale of margarine, printed in full on page — of this issue. After a hearing at which appeared Messrs. J. J. Farrell, W. T. Creasy, Geo. P. Hampton, B. John Black, master of the Maryland State Grange, and Burr B. Lincoln, deputy dairy and food commissioner for Michigan, the finance committee reported favorably upon the amendment, but with the understanding that there should be ample opportunity for its discussion and a separate vote upon it. The discussion had at the time this issue went to press been participated in by many senators, Messrs. Underwood, James W. Wadsworth, Jr., of New York, Francis E. Warren of Wyoming, and Charles S. Thomas of Colorado speaking at length in its favor, the opposition being led by Senators Boies Penrose of Pennsylvania, Porter J. McCumber of North Dakota, Lawrence Y. Sherman of Illinois, and Harry Lane of Oregon.

The publication of the Underwood amendment was very promptly followed by the publication from the Washington office of William C. Creasy, secretary of the National Dairy Union of a "protest" in which the various features of the bill were analyzed and their soundness challenged. The protest ended with an appeal for the absolute prohibition of the artificial coloring of margarine and also the prohibition of the incorporation therein of butter or milk fat. This protest was signed by William C. Creasy, J. J. Farrell, president of the National Creamery Butter Makers' Association and also of the American Dairy, Food and Drug Officials Association and at present dairy and food commissioner for Minnesota, and George P. Hampton, editor of the Farmers' Open Forum

The protest from the dairy interests was soon followed by the publication of a "Reply to Protests and Statements of the National Dairy Union" issued by the Interstate Cottonseed Crushers Association through C. W. Ashcraft, chairman of their legislative committee, and the American Live Stock Association through James Callan, chairman of their committee on national legislation. This pamphlet analyzes their protest and, in turn, challenges many of the statements contained therein.

In the senatorial discussion Senator Underwood incorporated with his speech various communications from the Department of the Treasury which department has for the last eight or ten years been in favor of the action contemplated by the Underwood bill. It seems that Secretary McAdoo, on February 4, 1916, was anxious to see action of this sort brought about, but very recently, February 8, 1917, took the opposite ground. Senator Underwood devoted considerable time to citations confirming the generally accepted opinion that margarine is a wholesome food product. He also filed with the Senate a large number of endorsements of his bill coming in the main from associations representing the consumer. In addition, he submitted statistics covering the trade in and the legal control of margarine in foreign countries.

Senator Penrose confined his reply largely to economic features. He appealed to the Senate on behalf of the producers of milk, dwelling at great length, although indirectly, upon the farm vote. The most significant statement in his reply is to be found in the last paragraph which reads as follows: "Mr. President, there are many objections to the pending revenue bill from my point of view, and from the point of view of the economic school in which I have been reared, and in which I still believe; but it seems to me that this amendment, calculated to destroy all the safeguards of the Grout law, permitting the untrammeled sale of oleomargarine in dishonest competition with butter, the product of the great dairy interests of the country is perhaps the worst feature among many features, all of which are objectionable."

Does This Mean You?

Gordon M. Day, Secretary of the Flavoring Extract Manufacturers' Association, reports that the vote on the merger is not being sent in by all the members promptly and requests that the members forward this vote to him at their earliest convenience to facilitate the work he has to do.

Report of Cold Storage Holdings of American Cheese, February 1, 1917.

Reports from 300 cold storages show that their rooms contain 20,320,702 pounds of American cheese, while on January 1 351 storages reported 31,854,979 pounds. The 206 storages that reported holdings on February 1 of this year and last show a present stock of 16,243,956 pounds as compared with 18,908,447 pounds last year, a decrease of 2,664,491 pounds or 14.1 per cent. The reports show that during January the January 1 holdings decreased 33.9 per cent, while our last report showed that during December they decreased 14.1 per cent. Last year the decrease during January was 26.2 per cent, and in December 17.0 per cent.

Reports of Cold Storage Holdings of Creamery Butter, February 1, 1917.

Reports from 273 cold storages show that their rooms contain 30,281,472 pounds of creamery butter, while on January 1 289 storages reported 46,133,748 pounds. The 211 storages that reported holdings on February 1 of this year and last show a present stock of 30,102,348 pounds as compared with 31,139,173 pounds last year, a decrease of 1,036,825 pounds or 3.3 per cent. The reports show that during January the January 1 holdings decreased 34.5 per cent, while our last report showed that during December they decreased 29.1 per cent. Last year the decrease during January was 36.5 per cent, and in December 34.7 per cent.

Report of Cold Storage Holdings of Eggs, February 1, 1917.

Reports from 281 cold storages show that their rooms contain 147,690 cases of eggs, while on January 1 326 storages reported 919,531 cases. The 216 storages that reported holdings on February 1 of this year and last show a present stock of 146,966 cases as compared with 457,954 cases last year, a decrease of 310,988 cases or 67.9 per cent. The reports show that during January the January 1 holdings decreased 87.7 per cent, while our last report showed that during December they decreased 57.1 per cent. Last year the decrease during January was 66.7 per cent, and in December 49.1 per cent.

Report of Stocks of Frozen and Cured Meats, February 1, 1917.

The total stocks of frozen beef reported by 190 firms on February 1, 1917, amounted to 189,138,253 pounds, while the total stocks reported by 225 firms on January 1, 1917, amounted to 173,829,426 pounds.

The total stocks of cured beef reported by 243 firms on February 1, 1917, amounted to 34,459,680 pounds, while the total stocks reported by 241 firms on January 1, 1917, amounted to 40,271,373 pounds.

The total stocks of frozen pork reported by 201 firms on February 1, 1917, amounted to 65,926,244 pounds, while the total stocks reported by 185 firms on January 1, 1917, amounted to 50,845,445 pounds.

The total stocks of dry salt pork reported by 302 firms on February 1, 1917, amounted to 217,290,642 pounds, while the total stocks reported by 309 firms on January 1, 1917, amounted to 199,542,596 pounds.

The total stocks of sweet pickled pork reported by 364 firms on February 1, 1917, amounted to 323,075,484 pounds, while the total stocks reported by 386 firms on January 1, 1917, amounted to 284,881,323 pounds.

The total stocks of lard reported by 333 firms on February 1, 1917, amounted to 87,804,663 pounds, while the total stocks reported by 346 firms on January 1, 1917, amounted to 83,162,608 pounds.

The total stocks of frozen lamb and mutton reported by 114 firms on February 1, 1917, amounted to 5,800,457 pounds, while the total stocks reported by 114 firms on January 1, 1917, amounted to 5,646,496 pounds.

Tentative Grades for Wheat Formulated.

Under authority from Congress contained in the United States grain-standards Act, which authorizes the Secretary of Agriculture to promulgate official grades for grain, the U. S. Department of Agriculture, through the Bureau of Plant Industry and the Office of Markets and Rural Organization, has completed the necessary investigations to justify the offering of a tentative basis for proposed official grain standards of the United States for wheat. To afford interested persons an opportunity to present their views in regard to the grades to be promulgated, a series of field hearings have been held in eleven cities in the Unitd States during the month, to be followed by a final hearing in Washington, D. C., March 7. The dates and places of the field hearings were as follows:

Feb. 5, New Orleans; Feb. 7, Fort Worth; Feb. 9, Denver; Feb. 12, San Francisco; Feb. 14 and 15, Portland; Feb. 16, Seattle; Feb. 17, Spokane; Feb. 20, Fargo; Feb. 21 and 22, Minneapolis; Feb. 23 and 24, Chicago; Feb. 26 and 27, Kansas City, and Feb. 28, Indianapolis.

The final hearing will be held in Room 43 of the United States National Museum, Washington, D. C., commencing at 10:30 o'clock in the forenoon of March 7, 1917, at which consideration will be given to any points which may then be brought up. Producers of grain, dealers, millers, manufacturers, bankers, warehousemen, inspectors, and other persons interested are invited to attend.

It is contemplated that the standards for wheat under the United States grain standards Act shall be on the basis of the grain remaining after the determination of "dockage," and the following classes and subclasses are proposed:

CLASS I. HARD RED SPRING WHEAT.

This class includes all varieties of hard red spring wheat. Grain which, after the determination of dockage, consists of hard red spring wheat and more than ten per centum of other wheat or wheats shall not be classified as hard red spring wheat.

(A) DARK HARD RED SPRING WHEAT.

This subclass includes hard red spring wheat of which seventy-five per centum or more of the wheat kernels are dark, hard, and vitreous.

(B) HARD RED SPRING WHEAT.

This subclass includes hard red spring wheat of which less than seventy-five per centum of the wheat kernels are dark, hard, and vitreous.

CLASS II. DURUM WHEAT.

This class includes all varieties of durum wheat. Grain which, after determination of dockage, consists of durum wheat and more than ten per centum of other wheat or wheats shall not be classified as durum wheat.

(A) AMBER DURUM.

This subclass includes durum wheat of which ninety per centum or more of the wheat kernels are amber or light colored.

(B) RED DURUM.

This subclass includes durum wheat of which ninety per centum or more of the wheat kernels are red.

(C) MIXED DURUM.

This subclass includes all mixtures of durum wheat not included in subclass (a) or (b) of this class.

CLASS III. HARD RED WINTER WHEAT.

This class includes all varieties of hard red winter wheat. Grain which, after the determination of dockage, consists of hard red winter wheat and more than ten per centum of other wheat or wheats shall not be classified as hard red winter wheat.

(A) DARK HARD RED WINTER WHEAT.

This subclass includes all dark hard red winter wheat of which ninety per centum or more of the wheat kernels are dark, hard and vitreous.

(B) YELLOW HARD RED WINTER WHEAT.

This subclass includes all hard red winter wheat of which seventy-five per centum or more of the wheat kernels are yellow or mottled and starchy.

(C) HARD RED WINTER WHEAT.

This subclass includes all hard red winter wheat not included in either subclass (a) or (b) of this class.

CLASS IV. SOFT RED WINTER WHEAT.

This class includes all varieties of soft red winter wheat and also red club wheat of the Pacific Northwest. Grain which, after the determination of dockage, consists of soft red winter wheat and more than ten per centum of other wheat or wheats shall not be classified as soft red winter wheat.

CLASS V. COMMON WHITE WHEAT.

This class includes all varieties (except Sonora) of common white wheat, whether winter or spring grown. Grain which, after the determination of dockage, consists of common white wheat and more than ten per centum of other wheat or wheats shall not be classified as common white wheat.

(A) HARD WHITE WHEAT.

This subclass includes Bluestem, Early Baart, Allen, Galgalos, Martin Amber, and other similar kinds of common white wheat, except those of soft, chalky texture.

(B) SOFT WHITE WHEAT.

This subclass includes all common white wheat, except Sonora and the white club varieties and hybrids, not included in the subclass of hard white wheat, and also includes wheat of a soft, chalky texture of the kinds embraced in the subclass of hard white wheat.

CLASS VI. WHITE CLUB WHEAT.

This class includes all varieties and hybrids of white club wheat, and common white wheat of the variety known as Sonora. Grain which, after the determination of dockage, consists of white club wheat and more than ten per centum of other wheat or wheats shall not be classified as white club wheat.

CLASS VII. MIXED WHEAT.

This class includes any mixture of wheats not within any class from I to VI, inclusive.

DOCKAGE.

Dockage includes foreign material such as sand, dirt, small weed seed, weed stems, chaff, straw, grains other than wheat, and undeveloped, shriveled, and small, broken pieces of wheat kernels, which readily can be removed from the wheat by the use of proper sieves, screens, or other practical means best suited to the character of foreign material present. The quantity of the dockage shall be calculated in terms of percentage based on the total weight of the grain including the dockage. The percentage of dockage so calculated shall be stated in terms of whole per cent and half per cent. A fraction of a per cent when equal to, or greater than, a half shall be treated as a half, and when less than a half it shall be disregarded. The percentage of dockage so determined and stated shall be added to the grade designation.

When any grain, after the determination of "dockage," is found to contain more than six per centum of grain of a kind or kinds other than wheat, it shall not be classified as wheat.

Each subclass is to be given five grades and a sample grade, the requirements therefor being outlined in Service and Regulatory Announcement No. 19. They cover the points of weight per Winchester bushel, moisture content, wheat of other classes, inseparable foreign material and damaged kernels.

Calf Club Celebration.

Salem, Illinois, famous as the birthplace of William Jennings Bryan, on February 22, entertained thousands of visitors attracted there by the inauguration of two Calf Clubs, one organized by the Salem National Bank, and the other by the Salem State Bank. In addition, the Baltimore & Ohio Southwestern Railroad Company exhibited a herd of pure bred Holstein cows and bulls which attracted much favorable attention. The organization of Calf Clubs by those interested in the future beef supply, Commissioner Matthews of Illinois being one of the leaders in the movement, has met with considerable success. It is an excellent project and it is to be hoped that the enthusiasm now shown by the boys and girls who each buy, with the aid of a local bank, a calf for the purpose of raising it to maturity, will be lasting.

Condensed Milk in Australia.

According to the Bureau of Foreign and Domestic Commerce, the following is the new standard for condensed milk imported into Australia, which has been in effect since December 1, 1916:

"Condensed milk shall be milk which is condensed or concentrated by any process whatever, with or without the addition of cane sugar; when containing such sugar, it shall also contain not less than 8.5 per cent of butter fat and 22 per cent of milk solids not fat, or, when not containing such sugar, shall contain not less than 8 per cent of butter fat and 20 per cent of milk solids not fat."

In the Doctor's Office

How You Are Nourished.

By Dr. Leonard Keene Hirshberg, A.B., M.A., M.D.

(Johns Hopkins University.)

The green stuff in leaves and plants is called "chlorophyll." It, with the sunlight, is a fairy's wand which converts moisture from the soil which passes up the stem to the leaf together with the carbonic acid gas of the air, into food. Green plants are the factories, the chlorophyll or green stuff is the machinery, sunlight is the power, water and carbonic acid gas are the raw materials, and the growing plant—vegetables, fruits, cereals, nuts and the like—is the product or food for man's use.

Since this is the only way that food is made and since chlorophyll is not found in complex animals, man and brute are dependent upon green plants for life and health. They may secure their rations directly from the vegetable world or indirectly by devouring other animals alive or slaughtered. Generally humans as well as brute creatures must grind and break up the fodder before it enters the stomach. This is usually done by crunching and chewing the food. At the same time it is dissolved with saliva and other fluids. Once the pabulum is well liquified it is absorbed by the tissues, to be passed on by the lymph and blood brooks to its proper reservoirs, granaries, and elevators for future or immediate use. The mouth is the vestibule and causeway through which fodder must first be macerated or masticated before it is available for the stomach juices. The bones and teeth and muscles of the oral cavity serve as crushers, piercers, tearers and dissectors of food, according to whether the teeth are broad-crowned, sharp, piercing, or jagged. Animals born to live upon vegetation—vegetarians—have only the broad-crowned, crushing teeth. The teeth of flesh eaters are sharp edged and pointed for cutting, snipping and tearing. Plainly, man's teeth are fitted for both flesh and vegetables. Almost any sort of food can be torn asunder by them.

The reason your mouth "waters" when you hear, see or smell appetizing food is because of the flow of saliva which, unlike most Americans, is always in a state of preparedness to tackle the viands, which it associates by habit with certain perceptions of the senses. Saliva comes from the glands below each ear, two other glands on the left floor of the mouth and two on the right—six in all. As victuals enter your mouth these glands "get busy" and pour forth more of their alkaline soda water. It is really a soda water. Mastication increases this natural "vichy and ammonia" so that if you chew your food slowly and carefully the alkali of the saliva, like the Gold Dust Twins, will do your work. Hasty swallowing on the other hand induces disorders of digestion, because the food leaps into the stomach unsalted or dissolved by the alkali and the digestive ferment of the saliva.

Ptyalin is the ferment or enzyme which—like all enzymes—converts huge carboys of stuff into simple substances without itself undergoing any change at all. It changes malt, starch and sugars into the simple, easily absorbed grape sugar. The advantage of a complete chew and mastication of your rations cannot be denied. This is especially true for persons who eat too much of such victuals as potatoes, pastries, cabbage, crackers, bread, porridge, cereals, biscuits, hot breads, candies, cakes, "sugars and spice and everything nice."

Milk That Never Even Saw a Cow.

A wide range of nature's products have recently been reproduced in an effort to combat the relative scarcity and high prices of commodities known as the necessaries of life. A careful analysis of the article to be imitated has often revealed the fact that its constituent elements may be assembled from the vegetable and mineral worlds. Synthetic processes formulated in the laboratory are demonstrating their practical utility in the factory, and the science of substitution is becoming a great factor in modern English industry, according to Vice-Consul Hamilton C. Claiborne, stationed at Bradford, England, in a communication to the Bureau of Foreign and Domestic Commerce.

A recent patent application in England is based upon a process for the manufacture of artificial milk for human consumption. It is claimed that a wholesome and inexpensive substitute can be made from peanuts, soya beans, sugar, water, and the mineral salts found in milk. In commenting on this new process the *Yorkshire Observer* gives the following synopsis of the patent:

"In 200 pints of pure water at 80° C. [176° F.] are dissolved 400 grains of potassium phosphate, or the equivalent amount of sodium phosphate; sufficient sugar is added to give 4.5 per cent to the finished milk and 40 pounds of meal prepared from one of the above nuts, blanched. The solution is boiled in a steam-jacketed pan, then subjected to the operation of a vacuum pan, and finally treated with a culture of lactic bacteria until the required acidity is obtained. It is afterwards pasteurized at 60° to 70° C. [140° to 158° F.] for at least 20 minutes, cooled, and stirred, while 0.05 to 0.11 per cent of citric acid is added.

"The milk so produced, it is stated, may be condensed and sold in tins in the usual way or dried to a powder and sold in bottles. It may be given a certain percentage of cream by the addition of coconut or one of the other tasteless nut fats, the fat being added when the substance is in the vaccum pan. It may be cultured by the aid of lactic bacteria to give a table cream or a soured mass for making into cheese. The residual meals, rejected after the special factors required have been taken from them, are mixed, dried until they contain only 10 per cent of water, and used as food for cattle."

Grain Sorghums as Food.

Although the protein of the grain sorghums has been shown by dietetic experiments of the Office of Home Economics of the U. S. Department of Agriculture to be less digestible than that of corn or wheat, all of the sorghums except kaoliang furnish a fairly good source of protein and practically as good a source of carbohydrates as the two grains in most general use. The Department specialists, therefore, find the grain sorghums worthy of use in all sections to give variety to the diet. In regions where other cereals are not so successfully grown, it is pointed out, the grain sorghums may contribute materially to the supply of substances suitable as human food. The conclusions in regard to these grains are set forth in Department Bulletin No. 470, recently published.

Tests were made with kafir, feterita, milo and kaoliang, both in the form of bread and as mush. Check tests were made also with corn and wheat as breads. All six of the grains were ground into meals of the same fineness in the same mill. In the experiments with the breads, the average digestibility of the protein of the wheat was found to be 77.3 per cent; corn, 59.9; kafir, 51.2; feterita, 50.6; milo, 40; and kaoliang, 19.8. In the experiments with mushes made from meals of the four grain sorghums, the digestibility of the protein was about 48 per cent for feterita and kafir, approximately 34 per cent for milo, and only 4 per cent for kaoliang. The digestibility of the carbohydrates was high for all six grains, ranging from 95.3 to 98.6 per cent.

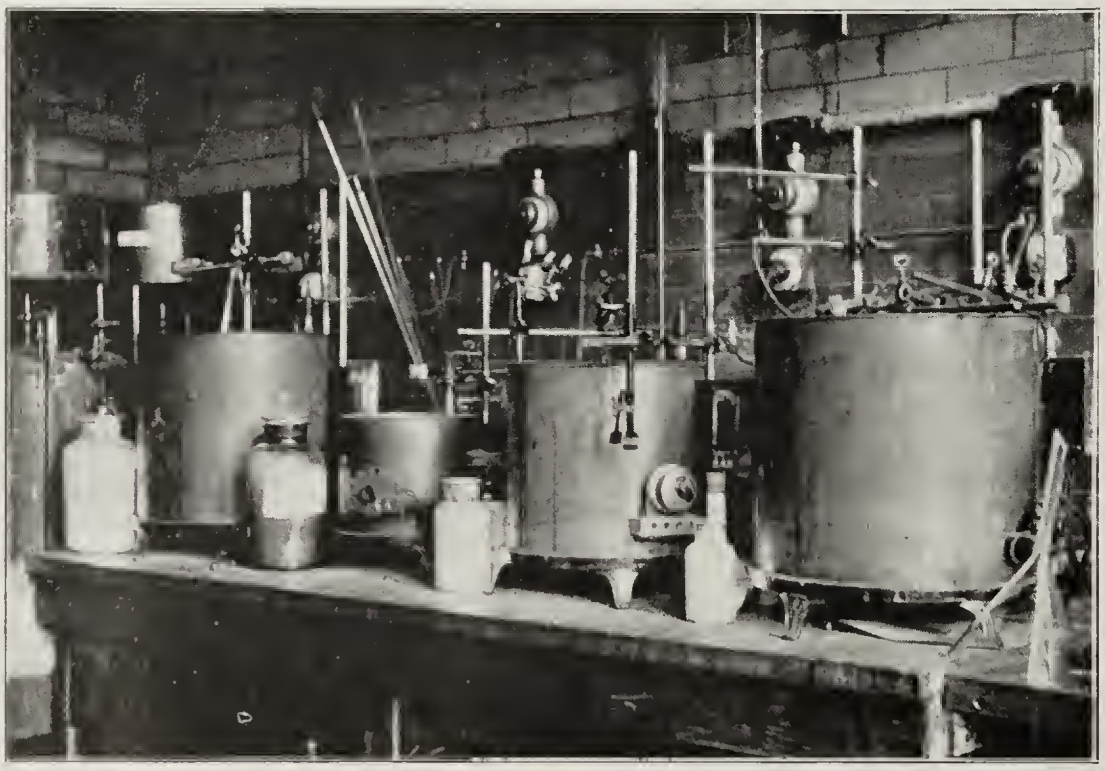
The results of the investigations as a whole indicate that while it is best to use some wheat flour to make up for the lack of gluten in the sorghum meal, a fairly large proportion of the meal may be satisfactorily used in admixture with wheat flour in the preparation of common foods. In preparing the grain sorghums for food it is important to make certain of the absorption of water in such quantities that the particles of meal, which are characteristically hard or flinty, may be well softened.

To many palates the grain sorghums more nearly resemble buckwheat in flavor than they do corn or wheat. The flavor is quite generally regarded as agreeable, and the grains are conceded to be wholesome. Dwarf kafir, dwarf milo, and feterita will pop like popcorn.

De Khotinsky Thermostats

A NEW type of electrically heated and controlled appliance for chemical, physical and bacteriological laboratories that is unequalled for cleanliness, safety, convenience and precise regulation has been developed by Achilles De Khotinsky of the University of Chicago.

The thermoregulators of these devices possess a number of advantages over the usual forms. The expansion tube or bulb is made of steel, which has about sixty-six times the thermal conductivity of glass and is filled with mercury, which has about sixty times the conductivity of toluene, a substance that is frequently used to fill thermoregulators. With these features the lag is greatly reduced, making the instrument respond immediately to slight changes of temperature. By using this system ovens can be held to within 0.1° centigrade of a predetermined temperature, while water baths are so well controlled that the temperature will vary but 0.01° centigrade from the constancy desired. The heating units are comparatively cheap and are easily replaceable even while the apparatus is in use.



At the present time the University of Chicago is using water baths, drying ovens, incubators, flask heaters and hot fixing and staining appliances for microscopic slides of the De Khotinsky design.

The accompanying photograph was taken in a corner of a laboratory at the University of Chicago, and shows four De Khotinsky constant temperature water baths in operation.

Immature Veal

THE recent decision of Commissioner Matthews of Illinois to enforce the state law prohibiting the sale of veal which, in the language of the statute, is "unwholesome or comes from animals less than four weeks old," is likely to be the means of bringing about a much-needed change in the manner of handling young calves.

Practically every state has a law similar to the Illinois statute. Some of them are based upon weight, rather than age, but the intent in all cases is the same and that is to prohibit the sale of what is known as "bob veal." Unfortunately, these state statutes do not always stand the test of the courts, the statutes being held unconsitutional because of the impossibility of defining wholesomeness, the real point at issue, in terms of either age or weight, and in regard to wholesomeness it must be borne in mind that bob veal, in itself, is not unwholesome. It is, however, of such nature as to deteriorate rapidly while in the channels of trade, and practically all parties concerned in the meat industry are agreed that it would be a good thing if it were denied the markets.

Commissioner Matthews not long ago held a hearing on this subject at his office at which, in addition to the Commissioner and Assistant Commissioner Newman, were present: Charles F. McKinley, Assistant Attorney General; W. F. Price, of Morris & Company; W. F. Colladay and W. R. Brown, of Wilson & Company; Frank A. Kelly, of Watson & Kelly; A. F. Murmann, of Jepsen & Murmann; Frank G. Heilman, of Aaron & Heilman Company; George W. Bordwell, of Congle Brothers; C. D. Miller and C. J. Tressler, of Swift & Company, and W. C. Kirk, of Armour & Company. All parties were agreed that it would work both to their best interests and to the best interests of the public if the farmer could by some means be made to rear calves to maturity. There seems to be no difference of opinion as to the object desired, but many differences of opinion as to the method by which this object can be accomplished.

The Government inspectors guide their actions in regard to this matter by paragraph 1, section 21 of Regulation 211 of the Bureau of Animal Industry, which reads as follows:

> "Carcasses of calves, pigs, kids, and lambs too immature to produce wholesome meat shall be condemned. Such carcasses shall be considered too immature to produce wholesome meat if (a) the meat has the appearance of being water-soaked, is loose, flabby, tears easily, and can be perforated with the fingers; or (b) its color is grayish red; or (c) good muscular development as a whole is lacking,- especially noticeable on the upper shank of the leg, where small amounts of serious infiltrates or small edematous patches are sometimes present between the muscles; or (d) the tissue which later develops as the fat capsule of the kidneys is edematous, dirty yellow or grayish red, tough, and intermixed with islands of fat."

It will be noticed that nothing is said as to weight or age, the matter of wholesomeness being the determining factor.

That immature veal is wholesome is substantiated by the recent invstigations of C. F. Langworthy, chief, and A. D. Holmes, scientific assistant in the Office of Home Economics of the United States Department of Agriculture. Briefly, they say that in regard to immature veal, commonly known as bob veal, little was known until recently, since the sale of calves less than 3 to 6 weeks old for food is prohibited by Federal and State laws. Our attitude toward veal, as toward many other foods, has been determined in part by custom and prejudices and in part by economic conditions and experience, often being illogical; therefore, it is of interest to ascertain in such cases how far belief is justified by facts, as shown by controlled experimental tests. The general opinion that veal is less wholesome than beef, and young veal less so than mature veal, is not a consistent prejudice against young flesh, as is shown by the common and apparently growing taste which prefers squab to pigeon, ranks broilers as superior to fowls, considers sucking pig a delicacy, and regards hothouse lamb—that is, lamb less than 3 months old and rapidly grown and fattened—as much superior to older lamb as lamb is to mutton.

That economic conditions may have an effect upon opinion, which is not consistent, is shown by the situation with respect to the marketing of calves. In grazing areas where the cheapness of food makes it possible to rear cattle at least to early maturity there is a natural tendency to do so. In regions where the dairy industry is highly developed, milk is such an important product that it is not thought profitable to rear calves beyond the period when the mother's milk becomes salable, and so, even though they cannot be marketed and the producer will seldom care to use on his own table what he is prohibited from selling, they are often slaughtered at from 3 to 6 days old instead of fed until the lawful marketable age.

The prejudice against veal, and more particularly young veal, is inspired chiefly, it would seem, by the belief that it is indigestible, by which is meant either that it causes a digestive disturbance or that it fails to digest as thoroughly as other meats, with the result that it is either harmful or undesirable as food. That this opinion does not rest on general experience is indicated by the contrary belief in Europe, which ranks veal as a particularly desirable meat, even for invalids, and which regards very young veal much as it does young pig and young lamb.

The question of its dietary value and its digestibility, both in the more popular and in the technical sense, has been answered by the tests herewith outlined. In the literature consulted empirical conclusions are not uniform and very little definite information has been found regarding the food value and possible use in the diet of very young veal. Studies have been made, however, to determine what the difference is, chemically or otherwise, between very young veal and the older market veal. The experiments of Fish* led him to conclude that the differences in the thoroughness of digestibility of the tissues of very young and market veal are so small as to be practicably negligible. Very recently Berg** has concluded that there are no physiologically significant differences in the chemical composition of beef and immature veal. It is evidently the opinion of the more recent investigators that very young veal, or, as it is commonly called, bob veal, is not unsuited for use as human food.

Recently dietary tests were carried out, the purpose of which was to have very young veal prepared by different methods and eaten by a large number of persons whose ages and activities were quite varied, to see whether purging or other disturbances of digestion would result and whether there was warrant for the popular belief that it is indigestible in the sense that it causes illness or distress. In general, it may be said that no physiological disturbances were noted either in the laboratory tests with individuals or in the tests made in a number of families. On the whole, it was noticed that when bob veal was cooked as a roast it presented a less appetizing appearance than did the more mature meats. This is due principally to the greater amount of water in the veal and to the less firm structure of the muscular tissue; consequently, when the meat is roasted or broiled—methods of cooking which cause the evaporation of considerable of the water—the meat shrinks away from the bones, producing an abnormal and undesirable appearance. However, if the veal is removed from the bone, it may be roasted, broiled, or used to make stews with very satisfactory results. The younger veal was found to take the place quite satisfactorily of the common market veal. In practice, the shrinkage in cookery due to loss of water would mean the purchase of a larger quantity for the table if the same amount of meat is to be eaten. The deficiency in fat can be made up by adding fat in cookery. No study was made of the effects of handling upon market quality, or of the general question of legal regulation with respect to the marketing of young veal.

The series of digestion experiments reported was made in the laboratory of the Office of Home Economics at the request of the Bureau of Animal Industry. The age of the calves used (in every case supplied by the Bureau of Animal Industry) was never more than *five* days, this age being arbitrarily selected in order to have as great a difference in maturity as possible between this type of veal and market veal. The calf was slaughtered the day preceding the cooking of the meat, and the carcass was stored in the meanwhile in a well-cooled refrigerator, no attempt being made, however, to study the keeping quality of the meat under ordinary trade and household conditions, a matter which apparently has not been studied. In order to make a comparison of the percentages of the principal food constituents in the two types of uncooked meat, an analysis of the very young veal and market veal is given. The percentages which are reported here are those obtained by averaging the results obtained from the analysis of a number of different samples.

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*P. A. Fish. The digestibility and decomposability of bob veal. In Rpt. N. Y. State Vet. Col. 1912-13, p. 51-81, 17 pl.

**W. N. Berg. Biochemical comparisons between mature beef and immature veal. In Jour. Agr. Research, v. 5, no. 15, p. 667-711, 6 fig.

	Very young veal.	Market veal.
Water, *per cent*........................	76.09	71.97
Protein, *per cent*......................	18.48	20.07
Fat, *per cent*..........................	2.79	7.43
Ash, *per cent*..........................	0.99	1.28

Five individuals assisted in making this investigation. They were active young men of good physique. The test consisted of a three-day or nine-meal period.

As determined by these experiments, the digestibility of the protein of bob veal is the same as that found for market veal—namely, 93 per cent, in round numbers. The subjects of both dietary and digestion experiments, so far as could be learned, experienced no physiological disturbances during the experimental period or afterwards. The tests showed that such veal can be prepared for the table in palatable ways and that so far as could be judged it was not unwholesome when eaten in quantity. In the digestion experiments the average weight of protein supplied by the meat exceeded that generally furnished by the meat portion of the ordinary diet, indicating that very young or bob veal was not distasteful. The experiments also indicate that the general opinion that young veal is a common cause of digestive disturbance or fails to digest as thoroughly as similar foods is not justified.

It is fairly well settled that a state cannot *prohibit* the sale of a wholesome article of food. It can, however, *regulate* the sale of wholesome food, and many states attempt to prohibit by regulation a course likely to lead to defeat if the case is carried through to the court of last resort. It would seem that Commissioner Matthews' very laudable desire to keep bob veal off the market, acquiesced in as it is by the dealers in meat products, could best be made effective through some such informal channel as a gentleman's agreement. Those who pack meat in the Union Stock Yards are under Federal inspection, and Federal inspectors are not allowed to concern themselves with the matter of the age of a calf. Other packers, under state inspection, should not be forced to obey arbitrary measures, the constitutionality of which is in considerable doubt. However, all parties are of one mind as to what should be done if a uniform method of handling the situation can be worked out.

Dairy Legislation in Canada.

British Columbia has 27 creameries, 11 of which are cooperative. The Province covers a large territory, but the creameries are confined almost altogether to the coast districts, with 20 in the coast cities and towns. There are no separate cheese factories in the Province, so that this work is confined to the creameries.

A consular dispatch published in a recent issue of *Commerce Reports* states that inspection is under the jurisdiction of the Dairy Division of the Provincial Live Stock Branch. Two inspectors, scientifically trained at Guelph for the management of commercial creameries, have been engaged by the department. All creameries are inspected at least once a year, and three inspections are made annually where possible.

As the co-operative creameries are aided by the Government they receive the most attention. One result of the inspection system is an annual increase of 20 per cent in butter production. The creamery premises are found to be uniformly in good sanitary condition.

An act passed at the last session of the Provincial Legislature for the regulation of creameries and dairies provides:

1. No creamery or dairy shall carry on business without a license under this act, and every creamery or dairy shall take out and from time to time renew and keep in full force and effect a license under this act.
2. No creamery or dairy shall permit any milk or cream to be tested save by an inspector licensed under this act.
3. Every creamery or dairy purchasing or dealing in any milk or cream shall deliver to the owner thereof, at such time and in such form as may be prescribed by regulation, a just and true account of the amount and value thereof, certified by an inspector licensed under this act.

Cold Storage Beef Discussed by Specialists.

The chemical changes that take place in lean beef held in storage under the best commercial practice at temperatures above freezing are without appreciable effect either upon the nutritive value or the wholesomeness of the edible portions, according to Bulletin No. 433 of the U. S. Department of Agriculture.

The chemical changes which took place in the beef subjected to the experiments and observations were found to be due in the main to ferments and only to a very small extent to the action of bacteria. The ferments are substances present in the meat which are similar in nature to some of the constituents present in digestive fluids. The changes, therefore, resulted chiefly from a kind of auto-digestion. One of the principal effects of storage upon the properties of the beef was a marked increase in tenderness. The studies showed, however, that this tenderness could not be attributed to bacterial action. While the flavor also changed somewhat, individuals probably would not agree as to whether the change was desirable or undesirable.

The investigations of the specialists included an examination into the "ripening" of beef. Though the changes in all beef held even for short periods may be said to result from a "ripening" or "aging" process, the term is applied especially to beef held for considerable periods at temperatures above freezing. Even in the case of such ripened meats it was found that bacteria penetrated only a very slight distance beneath the surface.

Because a number of factors influence the condition of fresh beef held in cold storage at temperatures above freezing, the wholesomeness of such meat must be judged by other considerations besides the length of time during which the product has been stored. The important factors besides length of storage are temperature, humidity, and the character of the beef. The usual commercial practice when freezing is not employed is to hold beef at temperatures between 34° and 36° F. Forty degrees has been found to be about the upper limit of safety. The lower the temperature in general the longer the meat can be kept in good condition. Beef also can be kept satisfactorily for longer periods, the recent experiments showed, when the humidity of the storage rooms is low.

In the studies and experiments, beef was held in cold storage at temperatures above freezing in the experimental cooler of the bureau for as long as 177 days, or approximately six months, apparently without appreciable deterioration of the lean meat. In a modern packing house cooler, where the humidity was much greater than in the experimental cooler, it was possible to hold beef in storage in satisfactory condition for only 55 days. Unfrozen beef, however, usually is not held for longer than six weeks, and where the better commercial practices prevail no undesirable changes take place. The carcasses of highly finished animals can be kept in good condition longer than those of poorly finished animals. One of the conditions which contributes to the better keeping qualities of finished carcasses is their protecting outer layer of fat, which becomes firm in cold storage and affords resistance to bacterial invasion.

The Food Manufacturer and the Law

By Thomas E. Lannen and Thomas J. Hickey
of the Chicago Bar

IN THE last chapter of this series of articles we dealt with the situation existing in the United States with respect to food laws prior to the enactment of the National Food Law, commenting especially on the situation existing about 1901. We will now, in this article, endeavor to deal with the situation that existed at the same period with respect to the decisions of the various State courts on the food laws. Thus will be disposed of that period of time and in subsequent articles we will deal with later developments both with respect to food laws and food law decisions.

A survey of the situation existing in 1901-2-3 with respect to decisions of the various State Food laws, collected and published in the *Journal of Proceedings* of the seventh annual convention, held in 1903, of the National Association of State Dairy and Food Departments, shows the following:

Decisions of the Supreme Courts of Various States as at 1903.

ALABAMA.

IMITATION BUTTER LAWS. Validity. Statutes which prohibit the manufacture of substitutes or imitations of butter are a valid exercise of the police power of the state and as such are constitutional. Cook vs. State, 110 Ala. 40.

CALIFORNIA.

WINE. It is not unconstitutional to prohibit the sophistication or adulteration of wine, as it is not unreasonable to such an extent that it becomes a ban on the sale of wine, so as to deprive persons of their property without due process of law. Ex parte Kohler, 74 Cal. 38.

Constitutionality. The act of March 7, 1887, in regard to wine which is in part as follows in its title "to prohibit the sophistication and adulteration of wine, and to prevent fraud in the manufacture and sale thereof," sufficiently complies with Sec. 24, Art. 4, of the Constitution, which reads in part, "Every act shall embrace but one subject, which subject shall be embraced in its title." Ex parte Kohler, 74 Cal. 38.

Sec. 8 of the act of March 7, 1887, in regard to the adulteration of wine, is in part as follows: "It is desired and required that every grower, manufacturer, trader, handler or bottler of California wines," etc., shall plainly stencil brand, or have printed where it will be seen (1) "Pure California Wine" and (2) his name or the firm name, but under the same a stamp need not be placed on pure Californiâ wine stating that it is pure California wine, and a person is not liable for a failure to so place a stamp, provided the wine is pure, as the act is not mandatory to such an extent. Id.

COLORADO.

FOOD LAWS. Jurisdiction. A city ordinance making it unlawful for any person to sell oleomargarine without specified marks and brands, made by virtue of a provision in a city charter giving the city council exclusive power to regulate all lawful occupations, and a further provision giving the police magistrate's court of the city exclusive original jurisdiction of all cases arising under city ordinances, does not deprive the district court of jurisdiction of a violation in a given city of the laws of 1893. Haines vs. People, 7 Colo. App. 467.

Ice. An ice retailer's ice was found to be impure. A law authorized the health commissioner to condemn and destroy all fluids or substances intended for drink or food whenever satisfied that its consumption might be injurious to the public health. The health commissioner put a stop to the ice business, and then summoned the retailer to show cause why the ice should not be destroyed. Held that the law does not authorize the condemnation of such substances without a trial before a regular authorized tribunal, in which the burden of proving the charge is upon the complainant and not on the defendant to show cause why not. Munn vs. Corbin, 8 Colo. App. 113.

Meat Inspection. An act which provides that fresh meats, sound and healthy and fit for human food, cannot be shipped into this state to be sold except on condition that the animals from which such meats have been taken shall have been inspected and certified to as provided by the statute, is in conflict with the provision of the United States Constitution which declares that citizens of each state shall be entitled to all the privileges and immunities of the citizens in the several states. Schmidt vs. People, 18 Colo. 78.

OLEOMARGARINE. Regulation and Sale. The sale of oleomargarine in unmarked packages is not a lawful occupation, so that cities having the power to license all lawful occupations carried on within their limits cannot license and regulate the sale thereof.

Jurisdiction. The District Court has jurisdiction over the oleomargarine law of 1893. Haines vs. People, 7 Colo. App. 467.

Packages Must Be Marked. It is unlawful to sell oleomargarine in packages not marked in two conspicuous places in bold-faced English letters, etc., as prescribed by act of April 12, 1893, and cities have power to license the sale of oleomargarine within their limits. Haines vs. People, 7 Colo. App. 467.

CONNECTICUT.

Validity. Where a city charter forbids the Board of Aldermen to pass ordinances regarding anything regulated by general statutes, an ordinance prohibiting the sale of any impure or adulterated milk is held to be void. State vs. Tyrell, 73 Conn. 407.

License. Under a charter authorizing a city council to pass an ordinance relative, among other things, "to the end that all subjects that shall be deemed necessary and proper for the protection and preservation of the health, property and lives of the citizens," an ordinance prohibiting the sale of adulterated and impure milk within the city and requiring every one that sells milk of any kind to first procure a license, is void, in so far as it requires a license from all to sell milk whether they are petty grocers, hucksters, or common victualers. State vs. Smith, 67 Conn. 541.

Guilty Knowledge. Pub. Act. 1901, c. 154 (Gen. St. 1902, Sec. 1346), provides that every person who shall willfully sell or offer to sell the flesh of any calf less than four weeks old when killed shall be punished by a fine, etc. Held, that guilty knowledge was an essential element of the crime defined by such act, and it was therefore error for the court to charge that by "willfully selling" was meant deliberately selling, without regard to defendant's motive. State vs. Nussenholtz, 55 A. 589.

DELAWARE.

LICENSE TO SELL FOOD. Although the provisions of a charter authorize a city to provide by ordinance against the adulteration of milk or cream sold, and for its inspection, it does not give the right to impose a license from dealers, and such power will not be implied unless it is shown to be necessary. Gray vs. Wilmington, 2 Mary. (Del.) 257, 43 Atl. 94.

ILLINOIS.

UNWHOLESOME FOODS. When diseased animals are known to be such, it is forbidden by the statute as well as by good morals to sell the same for food. Voorhees Reed, 17 Ill. App. 21.

UNWHOLESOME FOOD. Restaurant Keeper's Liability. A keeper of a restaurant is not an insurer of the wholesomeness of the food furnished by him to his patrons, and therefore is not liable to those who have eaten of it unless he is guilty of negligence. If he fails to exercise ordinary care in furnishing the food and damage results, he is liable for the want of such care, but not otherwise, and the person made ill by the eating of such food has the burden of proving that the restaurant keeper was negligent and careless in the furnishing of the same. Sheffer vs. Willoughby, 163 Ill. 518.

Diseased Meat. An offense is properly charged under the statute even though the affidavit stating the same states that the plaintiff sold, or kept for sale, or offered to sell, diseased meat, but fails to add the words "for food," provided the affidavit alleges an unlawful selling, etc., and that it was done contrary to the form of the statutes. Schattgen vs. Holmbach, 149 Ill. 654.

The refraining from shipping diseased flesh is not a valid consideration to support a promise to pay for such refraining. Voorhees vs. Reed, 17 Ill. App. 21.

Inspection of Food. The act of 1872, which authorizes cities organized under it "to provide for and regulate the inspection of meats, poultry," etc., and "to do all acts, and make all regulations which may be necessary or expedient for the promotion of health or the suppression of disease," confers power on them to establish a public slaughter house for the purpose of securing the proper inspection of meats. City of Rock Island vs. Huesing, 25 Ill. App. 600.

Adulterated Milk. Under an indictment for adulterating milk, it is not sufficient to show that the defendant sold a quantity of milk which when delivered to the purchaser was adulterated, but it must be shown that the defendant did the adulteration, or had knowledge of it. Dilley vs. People, 4 Ill. App. 52.

Skimmed Milk. An act to prevent the sale of skimmed milk to butter and cheese manufacturers is not intended to apply to a person making butter or cheese on his own account, but to such factories as are conducted on a joint or co-operative plan. Phillips vs. Meade, 75 Ill. 334.

BUTTERINE. Coloring. A law prohibiting manufacturers of butterine from using harmless coloring matter for making butterine resemble butter, and allowing the use of the same kind of coloring in white butter, is unconstitutional for unjust discrimination. People, Moxley vs. Pease, (Ill.) 30 C. L. N. 277.

INDIANA.

FOOD LAWS. Constitutionality. The law that provides that the board of health shall, within ninety days after its passage, prepare and publish minimum standards of food and drugs, and defining adulterations, is held not to be in contravention of that part of the constitution which declares that no laws shall be passed the taking effect of which shall be made to depend on any authority other than that provided by the constitution; but that the taking effect of the act was only postponed until the board met ninety days afterwards and made rules, etc., and that it took effect directly from the power which created it and not from the fact that the board of health made rules, etc. Isenhour vs. State, 157 Ind. 517.

Intent to Sell. Under the law which prohibits the manufacture of any article of food or drink which is adulterated within the meaning of the act, and that any one having in his possession with intent to sell any food or drink injurious to the health shall be liable to a penalty, it is held that an agreement to the effect that the possession of adulterated food with an intent to sell, not being named in the prohibitory part of the act, a penalty could not lawfully be affixed, was not good. Id.

Complaints, Who Can Make. Under the Food Laws of 1899, which make it the duty of the Board of Health to enforce the provisions thereof, an individual is not excluded from making a complaint for a violation of the same. Isenhour vs. State, 157 Ind. 517.

DISEASED MEATS. Prosecution. An information under a statute which makes it a penal offense for any one to have in his possession with intent to sell the diseased meat of any animal, which alleges that the defendant unlawfully and with intent to sell the same had diseased meat in his possession, sufficiently charges the knowledge that the meat was diseased. Brown vs. State, 14 Ind. App. 24.

DISEASED MEAT. Intent. Held that an indictment charging the defendant with knowingly killing diseased animals for the purpose of selling them as food is sustained if it is shown that the defendant knew them to be diseased and that he knew of the purpose to sell them for food. 14 Ind. App. 393. Moeschke vs. State.

An affidavit that a person had diseased meat for the purpose of sale need not allege that it was to be sold within the state. Moeschke vs. State, 14 Ind. App. 393.

Meat. To constitute an offense under the laws of 1881 the diseased meat must have been sold for food. Schmidt vs. State, 78 Ind. 41.

Indictment. An indictment which sets forth that the defendant knowingly had in his possession diseased and injured animals with unlawful intent to sell the same for human food sufficiently charges guilty intent. Brown vs. State, 14 Ind. App. 24.

MILK. Inspector. The milk inspector found defendant on the street about ten o'clock in the morning and asked him for a sample of his milk. He refused to give the sample on the ground that it was the last milk he had and that he had a customer to serve with it. The inspector took the milk and found that it contained formaldehyde. The court held that it was proper to refuse an instruction that the defendant should not be found guilty on the ground that he had no knowledge of the presence of formaldehyde in the milk. Isenhour vs. State, 157 Ind. 517.

Preservatives. Milk. In a case where the defendant testified that the milk contained no formaldehyde to his knowledge, and that he had never used formaldehyde, but that he had put into that particular milk a substance known as "Palmer's Preserver," which had been represented to him as containing no formaldehyde, and was asked to state what representations were made to him about said preservative, which he was not allowed to answer; and was not allowed to offer in evidence a circular regarding the preservative which was sent out with the same guaranteeing it and stating that it was harmless and contained nothing injurious, the court held that the case should be reversed on account of the exclusion of the circular and his answer as to the representations made to him about the the preservative. Isenhour vs. State, 157 Ind. 517.

MILK. An affidavit need not set out the provisions of the section excluding mixtures or compounds recognized as ordinary articles of food. Isenhour vs. State, 157 Ind. 517.

MILK. Affidavit. An affidavit which charges the defendant with possession of adulterated milk with intent to sell the same, although it does not allege that the defendant adulterated the milk, is good. Where an affidavit charges that the defendant has in possession with intent to sell milk adulterated with a substance injurious to health, formaldehyde, the affidavit was good, although it did not say that the formaldehyde was injurious or poisonous to health.

An affidavit which charges defendant with possessing for sale adulterated milk is good, although it does not charge that said milk was below the standard established by the State Board of Health. Isenhour vs. State, 157 Ind. 517.

OLEOMARGARINE INDICTMENT. Under an indictment charging that the defendant had in his possession with intent to sell within the state oleomargarine made to resemble yellow butter, it was held that a special plea which admitted the possession but alleged that the oleomargarine was an article of commerce under the constitution was not objectionable on the ground that it amounted to the general issue. McAllister vs. State, 94 Ind. 290.

IOWA.

LARD. The act requiring that all compound lard should have the words "Compound" with the name and proportion of the substances composing the same printed or written upon the outside of the packages containing it, is constitutional. State vs. Snow, 81 Iowa, 642.

MILK. It is held that a statute declaring a fine for selling adulterated milk is not unconstitutional, and that it does not restrain the police power of the state, as to public health, safety, etc. State vs. Schlenker, 121 Iowa, 642.

Where the statute provides that addition of water or any other substance to milk is an adulteration "for the purpose of this Chapter," it is not unconstitutional nor an encroachment on the judiciary power. State vs. Schlenker, 112 Iowa 642.

MILK. The police power can prohibit the sale of adulterated milk, though it be sold openly, fairly and with notice as such, and although the adulteration be harmless. State vs. Schlenker, 112 Iowa 642.

MILK. Criminal intent need not be proven in a case against one who sells adulterated milk. State vs. Schlenker, 112 Iowa 642.

LOUISIANA.

ADULTERATION. Under a charter authorizing the city to prohibit the adulteration of drinks, it may by ordinance adopt a legal standard against the adulteration, so long as such standard is not unreasonable. State vs. Fourcade, 45 La. Ann. 717.

ORIGINAL PACKAGES. Original packages are defined as bundles put up for transportation or commercial handling, and usually consist of a number of things brought together for convenient handling and conveyance. State vs. Board of Assessors, 46 La. Ann. 318.

MILK. The city charter authorizes an ordinance prohibiting the adulteration of milk by making it the duty of the council to prevent the sale of adulterated food. State vs. Stone, 46 La. Ann. 147; State vs. Labatut, 39 La. Ann. 514; State vs. Fourcade, 45 La. Ann. 718.

MILK. A city council which is given power by the city to prevent the sale of adulterated food is authorized to pass an ordinance prohibiting the adulteration of milk. State vs. Stone, 46 La. Ann. 147.

MAINE.

IMITATION BUTTER LAW. Validity. Laws which prohibit the sale of any substance made in imitation of yellow butter not made from pure milk or cream do not interfere with the right or privilege of the people to engage in the manufacture and sale of any wholesome compound simply to be used as butter, if it is not made in imitation of yellow butter, and its true character is made known. State vs. Rogers, 95 Me. 94.

OLEOMARGARINE. The act which prohibits the sale of any substance made in imitation of yellow butter made exclusively of milk or cream does not contravene the constitution as regards the power of Congress to regulate commerce between the states and foreign nations.

The state has the power to exclude from its markets any article which may be a fraud upon the general public and lead them to buy what they do not intend to buy, and can exclude from its markets a compound manufactured in another state artificially colored in imitation of yellow butter. State vs. Rogers, 95 Me. 94.

IMITATION BUTTER. Indictment for Selling. On an indictment under the law prohibiting the sale of any substance made in imitation of yellow butter which is not made exclusively from pure milk or cream, it need not be shown that the person selling knew that the compound was not made from pure milk or cream, or that he intended to deceive. State vs. Rogers, 95 Me. 97.

MARYLAND.

FOOD LAWS. Decisions of U. S. Courts. Where a case is decided by the U. S. Courts on a question of constitutionality, the state courts are bound by said decision. Fox vs. State, 89 Md. 381.

A state cannot prohibit the importation and sale within the state of oleomargarine in original packages made to resemble butter and in imitation thereof; but it can prohibit the sale of impure oleomargarine which is deleterious to health whether it is sold for butter or oleomargarine and no matter where it is made. Id.

Construction of Statutes. Statutes which prohibit the sale of adulterated meat, butter and milk are construed as a means for the protection of the public health. Pierce vs. State, 63 Md. 592.

MILK. Police Power. It is not unconstitutional to declare by law that a certain class of persons shall not sell impure milk within the city or town when a sale by that class of people would be particularly injurious to health, even though the law is not intended to apply to other persons who sell milk in the country, and it is not bad under the foregoing conditions as being class legislation. State vs. Broadbelt, 89 Md. 565.

A man has the right to exercise control over his property, but that control can be regulated by law when the protection of the public health requires it and when the equal control and enjoyment by other people of their property requires such regulation. Id.

Police power properly exercised cannot be limited by contract nor bartered away by the legislature. Id.

Milk Inspection. An ordinance made in pursuance of a statute authorizing a city to provide for the inspection and sale of milk within its limits which requires that all milk shall come up to a certain standard and authorizing the destruction of milk found below that standard, is a valid exercise of the police power. Deems vs. Mayor, 80 Md. 164.

OLEOMARGARINE. Acts Regulating Sale of Oleomargarine Valid. Pierce vs. State, 63 Md. 592; McAllister vs. State, 72 Md. 390.

Validity of Law. The provisions of the oleomargarine law which prohibit the keeping, selling or offering for sale of oleomargarine produced by mixing animal and vegetable oils, deleterious substances and milk with certain acids is valid both as to oleomargarine made in the state and that imported from other states and sold or offered for sale in the original packages. Fox vs. State, 89 Md. 381.

The statute against the sale of an article made in imitation or semblance of natural butter is held not to apply to oleomargarine shipped into this state from others and sold in original packages. Held that it is an article of commerce and that the statute would be a violation of the Federal Constitution regarding commerce if it were made to cover such goods. Fox vs. State, 89 Md. 381.

Indictment. A violation of the Pub. Gen. Laws, Par. 90, is sufficiently charged in an indictment charging the sale of oleomargarine colored so as to resemble butter. Rasch vs. State, 89 Md. 755.

Indictment. An indictment need not allege that the oleomargarine was fraudulently sold. Fox vs. State, 94 Md. 143.

Restaurant Keeper. The Maryland Code Pub. Gen. Laws, Sec. 91, which prescribes that it is an offense for a restaurant keeper to serve oleomargarine as food to his boarders is not a violation of the U. S. Con., Par. 2 of Art. 4, nor of the 14th Amend. of the Constitution. Hancock vs. State, 89 Md. 724.

It is no defense in a prosecution for selling oleomargarine to say that it is a wholesome article and imported from another state, where it is being sold by a restaurant keeper at his tables, as it is not then being served in original packages and does not come within the purport of the constitution as to selling it in original packages. Hancock vs. State, 89 Md. 725.

MASSACHUSETTS.

ADULTERATION. It makes no difference whether the foreign matter used is or is not injurious to the health; the addition of pure water is punishable under the statute. Com. vs. Scheffner, 146 Mass. 512.

DISEASED MEAT. The offense of selling consists in the knowledge or the intention of the party in selling meat which he knows is unfit for food. Com. vs. Boynton, 12 Cush. (Mass.) 499.

CATERER. Liability. One who holds himself out to the public as a caterer is liable to all persons who partake of what he has provided for them, in case they suffer from eating unwholesome food so provided. Bishop vs. Weber, 139 Mass. 411. And it is not necessary to allege payment or special damage. Peck vs. Halman, 28 Mass. 484.

CREAM. Held that cream to which boracic acid has been added comes within the meaning of the statute against a person possessing with intent to sell "milk" to which a foreign substance has been added. The term "milk" is held to include cream. Com. vs. Gordon, 159 Mass. 8.

CONSTRUCTION. Sections 5, 6, 7 and 9, Chap. 57, Pub. Stat. are construed to "prohibit the sale, etc., of milk containing 'more than eighty-seven per centum of watery fluid,' or 'less than thirteen per centum of milk solids,' unless it is sold, not as pure milk, but as skimmed milk, and out of a vessel, can, or package marked as required by section 7, that, on such a charge, it is immaterial what is the cause of the excess of watery fluid, or of the deficiency of milk solids; that the sale, etc., of milk 'to which water or any foreign substance has been added, or milk produced from cows fed on the refuse of distilleries, or from sick or diseased cows,' is prohibited, whether it is sold as skimmed milk or pure milk, and whether it contains more or less than thirteen per centum of milk solids; and that the sale of skimmed milk as pure milk is prohibited, even if it contains more than thirteen per centum of milk solids, and it is prohibited in all cases unless it is sold as skimmed milk and out of a vessel, can, or package marked as required by Sec. 7." Com. vs. Tobias, 149 Mass. 129.

ADULTERATION. In prosecution for selling adulterated milk it is immaterial how the quantity of milk solids has been reduced below the required percentage. Com. vs. Bowers, 140 Mass. 483.

SAMPLES AND ANALYSIS. Under the law which requires that when a sample of milk is taken an analysis of the same shall be sent to the person from whom it is taken, the milk inspector told the defendant that he would give him the analysis of his samples if he wanted them, and told him what the analysis of the samples were, and afterwards on defendant's request wrote down the analysis of defendant's samples which were below standard and gave them to defendant, and it was held that defendant was sufficiently informed of the character of his milk. Com. vs. McCance, 176 Mass. 292.

OBTAINING SAMPLES. The statute which gives collectors of samples of milk power to enter places where the milk is kept and to take samples for analysis, and which requires a sealed sample to be left with the owner, does not apply to a case where an inspector buys a sample without discovering that he is an inspector, but the defendant may be convicted on the proof by such inspector if the milk is below legal standard. Com. vs. Coleman, 157 Mass. 460.

DUPLICATE SAMPLES. The statute is merely directory which requires a portion of a sample of milk taken for inspection to be kept and delivered on request to the owner, and is not a condition precedent to the use of the inspector's testimony. Com. vs. Holt, 146 Mass. 38.

SEALING SAMPLES. The statute that requires all samples of milk to be sealed is not complied with by putting wax on top of the cork, but must extend over the nose of the bottle. Com. vs. Lockhardt, 144 Mass. 132.

RIGHT TO TAKE SAMPLES. The Legislature alone can justify the taking of samples of milk. An agent of a milk inspector has no right to take samples of milk against the will of the owner when he is not authorized by the inspector. It should be evident that the intention of the legislature was that the inspector should have the right to delegate their power to other persons and not a mere conjecture. Com. vs. Smith, 141 Mass. 135.

SAMPLES. Under the law which provides that inspectors of milk shall take and have analyzed samples of substances supposed to be imitation butter, it is not essential to sustain a prosecution for having in possession with intent to sell a compound in imitation of butter that the inspector save out and seal a portion of the sample. Com. vs. Ryberg, 157 Mass. 67.

SEALED SAMPLES. The statute of 1886 provides that a portion of a sample of milk taken for analysis shall, if the person taking the same be so requested, be sealed and delivered to the owner. This provision impliedly repealed the former enactment on the subject. Com. vs. Kenneson, 143 Mass. 418.

COMPLAINTS. Right to Make. The act that provides that inspectors of milk shall be authorized to institute proceedings against persons manufacturing, selling, or having in possession, with intent to sell, any article in imitation of yellow butter produced from pure unadulterated milk or cream does not limit such right to such inspectors alone, but complaints filed may be made by other parties; and it is held that a complaint filed by the assistant of the Board of Agriculture was not bad for want of capacity under the act. Com. vs. Mullen, 176 Mass. 132.

MILK SALE. It is held that where milk is delivered to a purchaser of a meal as a part thereof it is a sale of the milk within the meaning of the statute, as though it had been bought and paid for apart from said meal. Com. vs. Warren, 160 Mass. 533.

BRIBERY OF MILK INSPECTOR. An indictment for attempted bribery of a milk inspector is sufficient if it sets out all necessary facts relating to his official position even though it does not say that he was an executive officer under the statute relating to the bribery of "any executive, legislative, or judicial officer." The indictment need not aver that the act related to any specific matter then pending before the judge. Com. vs. Lapham, 156 Mass. 480.

AVERMENT THAT SAMPLE WAS ANALYZED. It is sufficient to aver that the inspector caused the specimen to be analyzed or otherwise satisfactorily tested under the statute which requires inspectors who find milk adulterated to take samples thereof and have them analyzed and tested. Com. vs. Lapham, 156 Mass. 480.

PROOF BY ANALYSIS. A certain mode of proof of adulteration does not exclude other modes which existed before. Com. vs. Spear, 143 Mass. 172.

TEST BY LACTOMETER. In order to show that milk was adulterated when the test had been made by the use of a lactometer it is not necessary to offer evidence as to the character of the instrument. Com. vs. Nicholas, 10 Allen (Mass.) 199.

COMPETENCY OF EVIDENCE. How Determined. In the absence of statutory provisions covering the taking of milk analyzed the rules determining the competency of evidence shall be according to the Common Law. The evidence of a person who has analyzed the milk and who is shown to have sufficient skill to analyze milk, is admissible. Com. vs. Holt, 146 Mass. 38.

CERTIFICATE. A certificate of analysis of milk by an inspector is admissible in evidence, provided the inspector testifies at the trial to the same facts as stated in the certificate. The admission of the certificate as evidence before an inspector testifies is not a ground for a new trial. Com. vs. Waite, 11 Allen (Mass.) 264.

EVIDENCE. The evidence showed that at an early hour in the morning the defendant's wagon was upon a public street, and that it contained several cans, from which a collector of samples in the employ of the milk inspector took a sample of milk from a can not marked "skimmed milk;" that an analysis of the milk so taken showed it to be below the legal standard; such evidence is sufficient to show an intent to sell the milk contained in the wagon. Com. vs. Smith, 142 Mass. 169.

AVERMENT OF QUALITY. Where the law requires a record of analysis be made and preserved as evidence and a certificate of such analysis sworn to by the analyst is made admissible in evidence against a defendant an averment that the analysis showed that the milk was not of standard quality was held to be sufficient. Com. vs. Lapham, 156 Mass. 480.

EVIDENCE. Testimony that the defendant was on a wagon which had a license and contained milk cans in one of which was adulterated milk, is competent evidence to show that he was in possession of adulterated milk with intent to sell it. Com. vs. Rowell, 146 Mass. 128.

SALE. To sustain a conviction under the statute of 1886 it is sufficient to show that a glass of adulterated milk was sold on the premises. Com. vs. Vieth, 155 Mass. 442; Com. vs. Warren, 160 Mass. 533.

MILK. Statutes which provide "whoever sells or keeps or offers for sale adulterated milk, or milk to which water or other foreign substance has been added" throw the risk upon the seller of knowing that the milk which he keeps and offers for sale is pure and unadulterated. Under an indictment for violation of such statutes allegation of proof of criminal intent is unnecessary. Com. vs. Farren, 9 Allen (Mass.) 489; Com. vs. Nichols, 10 Allen (Mass.) 199; Com. vs. Waite, 11 Allen (Mass.) 264; Com. vs. Smith, 103 Mass. 444; Com. vs. Warren, 160 Mass. 533; Com. vs. Vieth, 155 Mass. 442. But see Com. vs. Evans, 132 Mass. 11.

ADULTERATION. It is necessary to show in a prosecution of a person having in his possession milk adulterated with water, the admixture of foreign articles. Com. vs. Luscomb, 130 Mass. 42.

WATERED MILK. If it is shown that watered milk was sold as skimmed milk it is a good defense to a prosecution for selling adulterated milk. Com. vs. Tobias, 141 Mass. 129.

SKIMMED MILK. It is not necessary that the buyer of skimmed milk know it to be such, provided the vessel containing it is only duly marked. Com. vs. Smith, 149 Mass. 9.

WATER ADDED TO SKIMMED MILK. It is an offense to sell skimmed milk to which water has been added. Com. vs. Wetherbee, 153 Mass. 159.

MILK. Responsibility for Act of Servant. If a servant, in the course of his employment, sell adulterated or inferior milk, or imitation butter, or a sale by the master of such adulterated or inferior milk or imitation butter made by the servant without his knowledge the master is criminally liable. Com. vs. Gray, 150 Mass. 327; Com vs. Warren, 160 Mass. 533; Com. vs. Vieth, 155 Mass. 442.

MASTER'S LIABILITY. Milk. Possession of adulterated milk by servant is possession by the master, and he may be prosecuted for having the same. Com. vs. Proctor, 165 Mass. 38.

RESTAURANT KEEPERS. Notice. The law requiring restaurant keepers to furnish their guests with notice that oleomargarine or butterine is used instead of butter is not complied with by hanging up a sign reading "Butterine used only here," nor by having the words "Only fine butterine used here" printed on the bill of fare, if the guest does not read the sign or examine the bill of fare. Com. vs. Stewart, 159 Mass. 113.

VALIDITY (Oleomargarine Law). The legislature has power to pass laws to regulate the sale of oleomargarine. Com. vs. Huntley, 156 Mass. 236.

LICENSE TO SELL. Oleomargarine and butterine come within the meaning of the statute which provides that persons may carry and expose for sale fruits, provisions, etc., without a license. They are held to be provisions. Com. vs. Lutton, 157 Mass. 392.

SAMPLES. Where the defendant is charged with exposing for sale oleomargarine in imitation of butter and it is shown that he had oleomargarine in imitation of butter in his store, but kept it so that it could not be seen by customers, it is held that such facts shown are insufficient to support a conviction, and that they do not constitute an exposure for sale within the meaning of the statute. Com. vs. Byrnes, 158 Mass. 172.

SAMPLES. Illegal Taking. Even though a sample is taken from the defendant in an illegal manner, it is admissible as evidence in a prosecution for exposing for sale oleomargarine in imitaton of butter. Com. vs. Byrnes, 158 Mass. 172.

OLEOMARGARINE LAW (Construction). A statute which provides that on "both sides of" a wagon selling oleomargarine there shall be "a placard in uncondensed gothic letters, not less than three inches in length 'Licensed to sell oleomargarine;' " is not complied with by putting the placard on the inside of a covered vehicle. Com. vs. Crane, 157 Mass. 218.

CRIMINAL INTENTION NEED NOT BE SHOWN. It is unnecessary in a prosecution for selling oleomargarine without giving the purchaser express notice that it is such, to show a criminal intention. Com. vs. Gray, 150 Mass. 327.

LABEL LAW. Held not to be a violation of the law, requiring the top and bottom of a package in which butterine is sold to be plainly so marked to sell from such a package when the cover has been temporarily removed. Com. vs. Bean, 140 Mass. 172.

MICHIGAN.

ADULTERATION. Knowledge. Persons making sales of adulterated food, which is prohibited by statute to be sold, do so at their peril. It is within the valid exercise of the police power of a state to enforce a penalty for the sale of adulterated articles of food or drink, even though the seller has no knowledge of the adulteration. People vs. Snowberger, 113 Mich. 86.

ADULTERATED JELLY. Defendant, being a salesman, was prosecuted for selling adulterated jelly under the act of 1895 amended by 1897 and 1899 No. 117. The evidence showed that he obtained an order for pure fruit jelly, which he wrote down as "pure fruit jelly," and sent it to his house, having no further connection with deal. The house sent adulterated jelly labeled "Pure Fruit Jelly." It was held that the defendant could not be convicted of selling adulterated jelly. People vs. Skillman, 8 Detroit L. N. (Mich.) 1090.

BACON. Liability of Seller. In an action to recover damages for injuries arising from eating a piece of spoiled bacon sold by the defendant, it was not error not to permit the defendant's employe to testify that the bacon was prepared for sale about the time of the plaintiff's purchase. That it is a question for the jury whether the plaintiff was guilty of contributory negligence in eating the bacon after he smelled peculiar odors arising from it; and whether the defendant was so careless in seeing that the bacon sold was fit for food that he should be held liable for his own act or those of his servants. Craft vs. Parker, Webb & Co., 96 Mich. 245.

VINEGAR. Samples. Knowledge. It is held that a person prosecuted for selling vinegar not up to the legal standard is not entitled to have the prosecution give him a sample of the vinegar. He cannot complain that he could not get a sample for analysis if he was not stopped from doing so by any person interested in the prosecution of the suit.

Lack of knowledge that the vinegar was not up to the standard prescribed is no defense. People vs. Worden Grocery Company, 118 Mich. 604.

VINEGAR. It is held under the Pub. Acts of 1889, No. 224, which forbid the sale of cider vinegar containing less than one and three-fourths per centum of cider vinegar solids and prescribing that fermented vinegar shall have in addition to such per centum of solids contained in the fruit or grain from which it is made, two and one-half tenths of one per centum ash or mineral matter, are construed to mean that all fermented vinegar shall be of said standard, whether made from grain or fruit. People vs. Worden Grocer Company, 118 Mich. 604.

MILK. Experts. In an action for damages for the adulteration of milk furnished under a contract, where an expert testified as to the results of his analysis of the samples of the milk, the defendant might on cross-examination ask for the results of the analysis of other samples furnished by the plaintiff. Michigan Condensed Milk Co. vs. Wilcox, 78 Mich. 431.

CHEESE. Under the law which forbids any person from knowingly offering for sale cheese which is labeled falsely, in which knowledge is made an element of the offense, it is held that knowledge need not be proven to sustain a conviction of a person for selling adulterated food. People vs. Snowberger, 113 Mich. 86.

COLORING MATTER. Where the coloring matter used is not deleterious and is not used for the purpose of fraud and deception it does not come under the provisions of "an act to prohibit and prevent adulteration, fraud and deception in the manufacture and sale of articles of food and drink." Grosvenor vs. Duffey (Mich.), 80 N. W. 19.

OLEOMARGARINE AND OTHER IMITATIONS OF DAIRY PRODUCTS. The phrase "yellow butter" as used in Act. No. 22, Acts 1901, making it an offense to sell or offer for sale, oleomargarine colored in imitation of "yellow butter" made from pure milk or cream of the same, means any butter produced from pure milk or cream thereof having a "perceptible shade" of yellow. People vs. Phillips, 91 N. W. 616.

The pure food laws of 1895 (Pub. Acts 1895, p. 358, No. 193) is not intended to prevent manufacturers of articles of food from improving the same, so long as no infringement of the law or the spirit of act defining adulterations takes place. People vs. Jennings, 94 N. W. 216.

Comp. Laws No. 5012, declaring that an article shall be deemed adulterated, "sixth, if it is colored * * * whereby damage or inferiority is concealed, or if by any means it is made to appear better or of greater value than it really is," does not preclude the use of coloring matter in lemon extract. People vs. Jennings, 94 N. W. 216.

The provisions of Comp. Laws No. 5012 that an article shall be deemed adulterated, "second, if any inferior or cheaper substance or substances have been substituted wholly or in part for it; third, if any valuable or necessary constituent or infredient has been wholly or in part extracted from it," should be read together, and the provision first recited construed as prohibiting the substitution for an essential ingredient of any cheaper or inferior substances. People vs. Jennings, 49 N. W. 216.

There having not been incorporated into the pure food law of 1895 (Pub. Acts 1895, p. 358, No. 193) any specific formula for the manufacture of lemon extract, it is proper to resort to the United States Pharmacopoeia formula to determine of what lemon extract consists. People vs. Jennings, 49 N. W. 216.

Public Acts. 1901, p. 37, No. 22, Sec. 1, making it an offense to manufacture or sell any product made wholly or in part of any fat not produced from unadulterated milk or cream, which shall be in imitation of yellow butter, provided the act shall not be construed to prohibit the manufacture or sale of oleomargarine free from coloration or ingredient that causes it to look like butter, does not prevent the manufacture and sale of an article the ingredients of which themselves naturally produce the yellow color. Bennett vs. Carr, 96 N. W. 26.

The coloration of "Extract of Vanilla" with any substance to give it the appearance of greater strength is a violation of the pure food law, even though such coloring matter is harmless. (Mich.) People vs. Hinshaw, (Detroit Legal News).

(To be continued.)

Canners Convene at Cleveland

THE tenth annual convention of the National Canners Association was called to order in the Statler Hotel, Cleveland, Ohio, on Monday, February 5, at 2 P. M. From that time until the final session on Friday morning there was something doing every minute. It was an exceptionally well attended convention and set a record for actual achievements that will be hard to surpass at future meetings of the sort.

Early in the session, the following officers were elected: President, Mr. Henry Burden of New York; vice-president, Mr. Frank Gerber of Michigan, and for secretary, Mr. Frank E. Gorrell of Washington, D. C., was re-elected. The executive committee chairman is Mr. Burden, the chairmen of the other standing committees being as follows:

Advisory Board—J. W. McCall, *chairman*, Illinois; Finance Committee—Richard Dickinson, *chairman*, Illinois; Scientific Research—Richard Dickinson, *chairman*, Illinois; Conference With National Wholesale Grocers' Association—Frank Gerber, *chairman*, Michigan; Resolutions—S. F. Haserot, *chairman*, Ohio; Legislation—W. O. Hoffecker, *chairman*, Delaware; Adjustment and Information—E. V. Stockham, *chairman*, Maryland; Foreign Trade—C. H. Bentley, *chairman*, California; Sanitation and Inspections—F. M. Shook *chairman*, Ohio.

Among the matters of general interest is a resolution the preamble of which is a recital of Secretary Houston's recent request for authority to establish food standards, the resolution reading:

> **"Resolved, That the National Canners Association endorses this recommendation and desires its secretary to transmit to the Secretary of Agriculture and to Dr. Carl L. Alsberg a copy of this resolution of endorsement."**

The most important work of the Research Laboratory of the National Canners Association during the year 1916 has been the continuation and practical completion of the investigation of the question of proper coating for tin plate. This has been a work of considerable magnitude, but it is expected that a report will be ready for publication within a few weeks. During the year the work on testing tomato pulp has been continued, the results obtained fully confirming the previous opinion of the committee that the Government method for the examination of tomato pulp can only be successfully employed by analysts thoroughly conversant with the details as used by the analysts of the Bureau of Chemistry. Pulp manufacturers are, therefore, earnestly cautioned against accepting the work of laboratories whose analysts are not well acquainted with the exact methods used in the Bureau of Chemistry.

Several bulletins have been published during the year by this committee, including "Lye Peeling" and "Deterioration in Asparagus," by Mrs. Bitting; "Vacuum and Exhaust," "Processing" and "Canning and How to Use Canned Goods."

The canners have been given $40,000 with which to purchase the building which now houses their research laboratory in Washington. Needless to say the resolution thanking the American Can Company for this unsolicited donation passed without a dissenting vote and amidst much enthusiasm.

The committee on recommendations, among other items, reported favorably upon the question of definitions and standards, the adoption of the metric system of weights and measures and the formation of a committee on sanitation whose duties shall include the organization of a system of inspection for the entire canning industry on the lines already developed and installed by the sardine section.

Among the prominent speakers were Dr. H. E. Barnard, food commissioner for Indiana, who delivered a very fine tribute to the possibilities of canned foods; Dr. E. E. Pratt, chief of the Bureau of Foreign and Domestic Commerce, who discussed the very important question of post-bellum world trade; Mr. Theodore F. Whitmarsh, president of the National Wholesale Grocers' Association, who delivered one of his characteristic talks; Paymaster Harris, of the United States Navy, who explained the Government's requirements as they affect canned foods bought for the navy; and United States Senator B. M. Fernald, of Maine, who is himself a canner and proud of it.

New Executive Officers
of the
National Canners Association

President—Henry Burden of New York.

Vice-President—Frank Gerber of Michigan.

Secretary—Frank E. Gorrell of Washington, D. C.

Executive Committee—Henry Burden, Chairman, New York; Frank Gerber, Michigan; H. C. Hemingway, New York; W. R. Roach, Michigan; J. W. Hutchinson, Wisconsin; W. H. Fromm, Wisconsin; W. F. Burrows, Illinois; Richard Dickinson, Illinois; M. H. Hegerle, Minnesota; George Kelley, Iowa; E. W. Virden, Iowa; E. B. Deming, Washington; C. H. Bentley, California; E. H. Kennedy, California; S. B. Orr, Ohio; F. M. Shook, Ohio; James R. Stokeley, Tennessee; George B. Morrill, Maine; B. M. Pike, Maine; S. F. Taylor, New York; C. S. Stevens, New Jersey; H. L. Cannon, Delaware; E. V. Stockham, Maryland; Geo. N. Numsen, Maryland; Ralph Polk, Indiana; F. F. Wiley, Indiana.

Owing to the manner in which the National Canners Association is divided into sections, the more detailed activities of the convention are given by sections as follows:

TOMATO SECTION.

Chairman F. A. Torsch delivered the annual report of the Tomato Section, the main points mentioned being its work during the past year in connection with uniform cost accounting and daily market reports. The officers for this section for the ensuing year are: Chairman, H. S. Strasbaugh, Aberdeen, Maryland, and Secretary, D. H. Stevenson, Baltimore, Maryland.

FRUIT SECTION.

In his annual report, Chairman George A. Burnham stated that the activities of the fruit section during the year were along the line of cost accounting and the adoption of the Balling scale in place of the Baumé. Dr. A. W. Bitting, of the Research Laboratories of the National Canners Association gave a helpful talk on "Shrinkage and Evaporation in Canned Fruits." Another noteworthy address was that on "Canned Fruits Yesterday, Today and Tomorrow," by Mr. George W. Cobb, of the American Can Company. Mr. William Kittleberger, of New York, was elected chairman, and Mr. W. A. Godfrey, of Michigan, was chosen as secretary of this section for the coming year.

PEA SECTION.

Chairman H. C. Hemingway stated in his annual report that the questions of cost accounting systems and daily market reports were of paramount importance to the pea section. Mr. Frank Gerber, Chairman of the National Board of Cost Accounting, gave a talk on "Cost Accounting," and Mr. H. S. Orem spoke on the importance of the daily market report. Chairman H. C. Hemingway was re-elected for the ensuing year and Mr. George Stocking was elected secretary.

WAX AND STRING BEAN SECTION.

Chairman D. C. Pierce in his report called attention to the fact that the Wax and String Bean Section is very young and has not had opportunity for great accomplishments, their principal activities, however, being along the lines of costs and standards for grades. Mr. D. C. Pierce, Hamburg, N. Y., was re-elected chairman, and Mr. B. C. Olney, Oneida, N. Y., was elected secretary of this section for the ensuing year.

CORN SECTION.

Mr. Richard Dickinson, President of the National Canners Association, presided at the meeting of the Corn Section in the absence of Chairman J. W. McCall. The matter of harvesting corn and delivering it to the factories was discussed. An address by Mr. Clarence H. Sears on "Cost of Packing Corn," and one on "Efficient Factory Management in Its Relation to the Cost of Packing," by Mr. Fred A. Stare, were of more than passing interest. The officers for this section for the ensuing year are Chairman W. R. Olney, Oneida, N. Y., and Secretary George W. Drake, Chicago, Ill.

MILK SECTION.

Chairman John F. Montgomery presided at the meeting of the Milk Section. Dr. W. D. Bigelow spoke on "Standardization of Milk"; Mr. Timothy Majonnier made an address on "Controlling the Chemical and Physical Properties of Evaporated Milk"; Paymaster Harris of the U. S. Navy explained the Government's methods of making contracts, and Mr. Hook submitted a draft of a proposed petition to the Interstate Commerce Commission in regard to exempting milk containers from all embargoes. Chairman John F. Montgomery was re-elected and Mr. R. B. Page was elected secretary for the ensuing year.

KRAUT SECTION.

Chairman A. E. Slessman stated that there are very nearly 5,000,000 cases of kraut packed annually. Many subjects of live interest to this section, such as making and curing kraut, cost accounting, honest methods in packing, control of cabbage diseases, etc., were discussed. The officers for the ensuing year are Chairman A. E. Slessman, Fremont, O., and Secretary W. W. Wilder, Clyde, O.

HOME ECONOMICS SECTION.

This is a newly-organized section, being the women's branch of the National Canners Association, formed at the suggestion of Mr. W. J. Sears. Efficiency in home making, problems in the selection of food, and other topics of very real interest to women were discussed. Mrs. W. J. Sears was elected chairman and Mrs. Cobb secretary for the ensuing year.

A Little Knowledge is a Dangerous Thing

DURING the winter of 1915-16 a retail grocer in Oklahoma City purchased from a local wholesaler three lots of ten cases each of a brand of Stowell's Evergreen Corn which was largely sold in that locality. Then, early in February, he purchased the fourth lot of twenty-five cases. All four of these lots were of the same brand, from the same shipment and identical in all respects. The cans were rusty on the outside and were so represented to the grocer and a concession in price was made on that account. A few days after the purchase of the last lot, the retailer complained to the wholesaler that the corn was unsatisfactory and demanded that it be taken back. He could not specify any particular in which it was unsatisfactory but merely stated that it was not good. Upon the refusal of the wholesaler to take the corn back, the retailer threatened to turn the matter over to the food inspector. This threat he made good and at his request the food inspector called at the store and seized the corn. The case was prosecuted in the municipal court and won by the city, the wholesaler being fined $50.00. In this case the city chemist took an active partisan interest and personally examined the witnesses. The case was then appealed to the County Court and was heard by Judge Zwick in Oklahoma City on December 19, 1916. Both sides waived a jury and, after the evidence was in, both sides waived argument and the court without hesitation gave a verdict in favor of the defendant.

The first witness in the case was E. B. Roach, the food inspector of Oklahoma City. He testified that he visited the store at the request of the retailer and, after looking at the corn, concluded that it was field corn. He considered that he was qualified to distinguish field corn from sweet corn as he had, previously, at various times, cut a number of cans which he believed to be field corn. He had never seen corn packed, and had never seen canned corn which he knew to be field corn. He had no knowledge of the different varieties of sweet corn and had never heard of Stowell's Evergreen. After looking at the corn he immediately seized it and the following day took samples to the city chemist.

The city chemist, Mr. C. E. Clifford, testified that he had received samples of this corn from the inspector, that he had examined the samples and found that they consisted of field corn in place of sweet corn, that they contained from two million to ten million living bacteria per cubic centimeter and that they contained added sulphurous acid, alum, alcohol and tin in the following amounts:

Sulphurous acid (SO_2), 32 milligrams per kilogram;
Alumina (Al_2O_3), 0.13 per cent;
Alum (calculated from alumina), 1.15 per cent;
Alcohol, approximately, 1/3 of one per cent;
Tin, 100 milligrams per kilogram.

Mr. Clifford also stated that the can was badly corroded, especially the top of the can, which was not in contact with the corn. In the top of the can he saw a broad band of black material, giving evidence of serious corrosion. The cross-examination of Mr. Clifford developed the details of the methods he employed. An effort was made to confirm Mr. Clifford's testimony by another chemist who has had about six months' experience in the examination of foods and who made a qualitative examination of samples of the corn in question and from these qualitative reactions expressed the opinion that sulphurous acid, alumina and tin were present in abnormal amount.

In the afternoon, Dr. W. D. Bigelow, Chief Chemist of the National Canners' Association, took the stand for the defense and testified substantially as follows:

Dr. Bigelow had never before assisted in defending a case which was being prosecuted by any food official. The laboratory of the National Canners' Association is intended for research work and has always refused to participate in any way in prosecutions under the food laws. This case, however, was such a manifest injustice that the President of the National Canners' Association, on Dr. Bigelow's recommendation, authorized him to assist in this case, at the expense of the National Canners' Association.

The corn in question was a typical standard corn of the large-grained Stowell's Evergreen variety. As is customary in canning corn of the grade known commercially as "Standard," the amount of sugar and salt added to the corn was less than is usual with higher grade corn. This explains the fact that the product was not as sweet as corn known commercially as "Fancy."

All the methods described by Mr. Clifford as having been employed by him were faulty in the extreme and the results he obtained even by those methods would not warrant his conclusions. The method employed by Mr. Clifford for the determination of sulphurous acid was formerly used by the Association of Official Agricultural Chemists, but has been discarded by that association as unreliable. In addition to that, the amount of sulphurous acid reported by Mr. Clifford would be regarded by any food chemist as utterly insignificant. The literature of the determination of sulphurous acid contains frequent reference to the fact that any food, when heated with boiling water as is done in the determination of sulphurous acid, gives off hydrogen sulphid, which reacts the same as sulphurous acid. On this account, it is well known by food chemists that traces of sulphurous acid, such as those obtained by Mr. Clifford, must be ignored. It is stated in several places in the proceedings of the Association of Official Agricultural Chemists that errors which would otherwise be occasioned by hydrogen sulphid can be avoided by interposing traps of cadmium chlorid or copper chlorid between the distilling flask and the condenser. This holds back the hydrogen sulphid but permits the free passage of sulphurous acid. By the method employed by Dr. Bigelow, using traps of cadmium chlorid, it was found that the samples contained not more than two milligrams of sulphurous acid (SO_2) per kilogram, a figure that is within the error of the most exact method for the determination of sulphurous acid. Dr. Bigelow also demonstrated the presence of hydrogen sulphid produced by the sterilization of the corn or during the determination of sulphurous acid, and mistaken by Mr. Clifford for sulphurous acid, by the formation of characteristic bright yellow cadmium sulphid in the traps.

Mr. Clifford determined the amount of alum present by dissolving in hot dilute hydrochloric acid the ash obtained by incinerating the sample. To this solution he added ammonia and ammonium chlorid and thus precipitated what he believed to be alumina. It is a matter of common knowledge that all seeds contain calcium and phosphoric acid and it is well known by all students of qualitative analysis that from such a solution ammonia will precipitate not only alumina but also iron and calcium phosphates. In order to determine the amount of alumina present, it is therefore necessary to separate it from the other substances mentioned. The figure which Mr. Clifford reported for alumina (0.13 per cent) is the normal amount of calcium phosphate in corn. By employing the method of the Association of Official Agricultural Chemists for the determination of alumina in vegetable products, Dr. Bigelow found that the amount of alumina present in the corn in question did not exceed 0.003 per cent. This amount was entirely negligible and in the compilation of Langworthy and Austin is shown to be present generally in fruits and vegetables.

In describing his method for the determination of alcohol, Mr. Clifford stated that he placed the contents of a can of corn and an equal amount of water in a 1000 cc. flask and distilled until 60 cc. of distillate had been obtained. From the refractive index of this distillate, he found that it contained about one-third of one per cent of alcohol. The details described by Mr. Clifford for this method are impossible of execution. A can of corn contains almost 600 cc. This, together with an equal amount of water, is, of course, beyond the capacity of a 1000 cc. flask. Moreover, even with a product which distills readily, it is not customary to have a distilling flask more than half full. A greater volume renders distillation difficult. Again, even if this mixture were placed in a flask in proper amount, its distillation would be very difficult as such a mixture "bumps" and "foams" badly. In view of the difficulty in distilling such a mixture, it appears probable that very small amounts of sugar and soluble starch were carried over into the distillate by foaming and that their presence was the cause of the slightly increased refraction of the distillate noted by Mr. Clifford. Incidentally, in calculating the amount of alcohol from the refractive index of this distillate, Mr. Clifford overlooked the fact that he employed 600 cc. of the sample and only obtained 60 cc. of the distillate. According to his description of his method, therefore, the amount of alcohol present was concentrated ten times in the process of distillation and therefore, according to his own figures, was only present to the extent of one-tenth the amount he stated.

Mr. Clifford was not asked to give his method for the determination of tin and Dr. Bigelow had no comment to make on that subject except that minute traces of tin were universally found and must always be present in all foods canned in plain tin. Corn attacks tin very little—probably as little as any other food. While the amount of tin found by Mr. Clifford (100 milligrams per kilogram) is greater than is usually found with corn, still that amount is frequently found and is not regarded by anyone as objectionable.

Dr. Bigelow expressed the opinion that Mr. Clifford's bacteriological findings (from two million to ten million bacteria per cc.) were inconsistent with his statement that the odor and flavor of the corn were normal. In the spoilage of canned food the first noticeable step is the disappearance of the normal aroma of the food. This is apparent before offensive or sour taste or odor can be detected. With organisms developing in a sealed can, Dr. Bigelow stated that the presence of this number of bacteria would produce a noticeable effect on the odor and flavor of the corn.

Dr. Bigelow saw no evidence of corrosion in any of the cans opened by him or in the cans of the same corn opened in the court room and submitted to him on the stand. The general darkening over the inner surface of the corn he stated to be characteristic of many kinds of non-acid or slightly acid food, such as corn, peas, pork and beans, and kidney beans. This darkening is often misunderstood by consumers and even by some chemists who are not familiar with the industry and who content themselves with a superficial examination. Such people often mistake this dark color for the iron underneath the tin coating and take it as evidence that the tin has been corroded away. As a matter of fact, the dark color in these cans is entirely superficial and the tin coating is intact beneath it. This dark color is caused by the action of traces of hydrogen sulphid formed in processing the corn on the metal of the container. A marked band of dark material at the top of the can referred to by the prosecution as special evidence of corrosion was explained by Dr. Bigelow as a formation of colloidal iron sulphid which occasionally occurs on the inner surface of cans containing corn, and which has caused a good deal of apprehension during the last few years in the minds of some canners. It was explained that these black patches are not caused by corrosion and that their cause is only partly understood. This is a question which has been exhaustively studied during the last two years by the Research Laboratories of the National Canners' Association in collaboration with the laboratories of other industries. Considerable progress has been made in overcoming this difficulty, but it is not yet entirely understood. The present opinion is however quite definite to the effect that it is not connected with the general question of corrosion.

When asked about the testimony of the collaborating chemist, Dr. Bigelow stated that qualitative tests were of no value whatever for the purpose for which the collaborating chemist used them. Moreover, even the qualitative test he employed for alumina was open to the same objection as the quantitative method used by Mr. Clifford. Dr. Bigelow also submitted for comparison the results of an analysis made by him of two samples of corn (one of standard Stowell's Evergreen and one of fancy Country Gentleman) which were packed in his presence. These results were practically identical with those obtained by the examination of the corn involved in this suit.

As was stated in the first paragraph, when the testimony was concluded counsel for both sides waived argument and the court immediately decided in favor of the defendant.

Preventing Wormy Chestnuts.

Worminess in chestnuts can be avoided in large measure, say entomologists of the U. S. Department of Agriculture, if the nuts when gathered are promptly fumigated with carbon bisulphid, all trace of which should be removed after fumigation by exposing the nuts to air. They also may be treated successfully with hot water, or subjected to dry heat in a kiln or oven. Care should be taken, when the oven treatment is adopted, not to allow the temperature to rise above 150 degrees. These measures destroy minute eggs and young grubs, unobjectionable, on the whole, but which may later develop into worms and ruin the nuts. In any case, however, nuts should be carefully examined and defective nuts sorted out as completely as possible.

Mixed Flour in Great Britain.

There was recently received by the Bureau of Foreign and Domestic Commerce a cablegram from the consul general at London, dated January 12, concerning British wheat-milling provisions, and reading as follows:

"Food Controller requires that the 29th millers must mill up to 81% of whole wheat or add to 76% wheat 5% barley, corn, rice, or oats flour, option given to millers to increase barley, corn, rice, or oats to 10%."

A Bacteriological Study of Hamburger Steak

By Edwin LeFevre
Scientific Assistant in Food Bacteriology. U. S. Department of Agriculture.

ALTHOUGH all fresh meats, and especially the chopped meats, lend themselves readily to bacterial invasion, very few bacteriological studies of these products are available. No standards have as yet been definitely established and the sanitary control of these very important food products is sadly deficient in almost every community. A study of hamburger steak by Weinzirl and Newton[1] calls attention to this phase of sanitary bacteriology and presents valuable suggestions in regard to the technique to be employed.

The following investigation of hamburger steak was undertaken with a view to determining the comparative results of the use of the method of Weinzirl and Newton as applied in a locality and under market conditions differing widely from those met by them. The plan which has been followed may be briefly outlined as follows: One pound of hamburger was purchased from each dealer. From this there was carefully weighed in a tared porcelain crucible a sample of 10 grams of the meat. This was made up by selection from various parts of the entire amount with the careful rejection of fatty portions. In this way, a sample may be secured which is fairly representative of the entire amount sold by the dealer. To this were added 5 grams of white sand. With the aid of a glass pestle, the meat was then thoroughly ground into a pulp. A small amount of water was added and the grinding continued. This process was continued until 90 cc. of water had been added, and by the repeated grinding and stirring a perfect emulsion formed. Needless to say, everything coming in contact with the meat was first carefully sterilized, the only chance for contamination being the exposure of the sample during its preparation. This, if the process be carried out carefully and expeditiously, may be regarded as negligible. Preliminary experiments fully confirm the conclusion of Weinzirl and Newton as to the impossibility of securing correct counts by any other method than that of grinding the meat. The ordinary method of shaking up a sample with the aid of broken glass gave bacterial counts very much lower than could be obtained from the same meat by the grinding method. This made it clearly evident that the latter is the better method to use. The sterile water used for preparing the sample and for making dilutions contained 0.5 per cent of sodium chlorid. From each sample prepared as above, three sets of plates were diluted from one thousand to one million. Inoculations were also made into lactose broth and dextrose shake agar. The plates were poured with the plain agar, litmus lactose agar, and nutrient gelatin. All the agar media used in this investigation were made from beef infusion broth with 1.5 per cent of agar, and the reaction adjusted to + 1.5 (a). This was used for total counts because it is presumed to afford a more natural medium for the growth of organisms occurring in meat than would a broth made from beef extract. The agar plates were incubated at 25° C,, the gelatin at 20° C., and the lactose broth and dextrose shake agar at 37° C. All counts were made on the third day except the gelatin count which was made on the fifth day.

In making this investigation, samples of hamburger steak were obtained from ten dealers. These were selected not with a view to getting the best or the worst, but solely with a view to getting that which would be fairly representative of the meat of this kind as found in the markets. Two series of samples were obtained from the same dealers. The first series was collected during the month of November, at which time unusually mild weather prevailed, the average mean temperature for the month being 46.2° F. The second series was taken during the month of December, for which month an average mean temperature of 35.2° F. was recorded. While the number of samples examined was not large, they are believed to represent fairly well the character of the hamburger sold. In addition to the above, two samples of hamburger prepared in the laboratory were examined and recorded. The results obtained from these examinations are shown in the accompanying tables.

From these tables it will be seen that in the first series, six of the ten samples show counts of over 10,000,000 organisms per gram, and in the second series five are still above that number. All except No. 2 show the presence of gas forming organisms in a lactose medium. Probably all except No. 2 contained bacteria of the colon type, but for the purposes of this analysis these were not recorded as present unless the presumptive test was confirmed by means of Endo's medium and double sugar agar. In several samples, extremely high counts are shown and in the case of at least two, the counts were so high as to mark them as manifestly unfit for human consumption.

LIQUEFIERS.

All the samples show the presence of liquefying organisms, but the percentage of this type present does not seem to show any correlation either with the organoleptic test or the sanitary conditions under which the meat is known to be sold. Their presence, therefore, seems to be largely of an accidental nature and of no especial value in determining the sanitary condition of the product.

ACIDIFIERS.

Although lactose fermenting organisms are shown to be present in all but two samples, organisms capable of producing red colonies in litmus lactose agar were seen in but three, and these are few in number. The only explanation we can offer for this is either the feeble acid-producing power of the acidifiers present or the possibility that their fermenting power was in some manner masked by the much larger number of alkaline colonies present.

BACTERIAL FLORA.

No effort was made during this investigation to determine with any degree of completeness the specific kinds of microörganisms present in the meat. Sufficient attention was given the matter, however, to determine that the range of organisms present was a wide one. In addition to the colon group which was present in nearly all samples, the coccaceae were very commonly found. Those included both the staphylococcus and streptococcus forms, and among them the staphylococcus pyogenes aureus was isolated. Members of the subtilis group and other spore-bearing organisms were present, as were also certain of the higher bacteria. B. proteus was isolated from one sample.

ANAEROBES.

In a few of the samples, tests were made for the presence of strict anaerobes, and in one instance at least these were shown very conclusively to be present. In nearly all samples, organisms were present which grew well under strictly anaerobic conditions. In the examinations of the first series of samples, inoculations were made from each into beef egg medium.[2] These, in nearly every instance, gave the typical odor of putrefication in from twenty-four to forty-eight hours' incubation at 37° C.

ORGANOLEPTIC TEST.

A test of its quality as determined by the senses, especially its appearance and odor, was made for each sample at the time it was taken. These were recorded as "Excellent," "Good," "Fair," or "Poor." A test of this kind should be made as a matter of routine in each case, and varies in value according to the care and intelligence with which it is made.

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[1] Weinzirl and Newton, Amer. Jour. of Pub. Health, Vol. IV, pp. 408-413. 1914.

(a) The reaction of the medium used was adjusted to that degree of acidity which would require the addition of 1.5 per cent of normal sodium hydrate to render it neutral to phenolthalein.

[2] Rettger, Jour. Biol. Chem. Vol. II, p. 71, 1906.

BACTERIOLOGICAL EXAMINATION OF HAMBURGER STEAK.

Sample.	No. of organisms per gram on: Plain agar.	No. of organisms per gram on: Nutrient gelatine.	Liquefying organisms.	Acid producing organisms.	Gas-producing organisms per gm. in lactose broth at 37° C.	Organisms isolated.	Organoleptic test.	Price of meat per lb.	Remarks.
					FIRST SERIES.				
1	170,000,000	300,000,000	7%	None	10,000	B. coli	Poor	15c	Odor of stale meat; tough.
2	300,000	144,000	18%	None	Less than 100	None	Excellent	20c	Meat ground in presence of purchaser from fresh round steak; well handled.
3	383,000,000	250,000,000	10%	None	100,000	B. coli	Poor	13c	Every indication of a very poor quality of meat.
4	8,000,000	8,500,000	17%	None	1,000	B. coli	Good	25c	Meat evidently freshly ground; said to be from round steak.
5	10,000,000	14,000,000	14%	None	100,000	B. coli	Fair	15c	Contained a large percentage of fat.
6	350,000,000	420,000,000	16%	None	100,000	B. coli	Poor	13c	Odor of stale meat.
7	100,000,000	112,000,000	18%	None	10,000	B. coli	Poor	15c	Did not have appearance of fresh meat.
8	14,500,000	20,000,000	4%	10%	1,000	B. coli	Good	15c	Appearance of fresh meat; no unpleasant odor.
9	80,000,000	150,000,000	8%	None	100,000	B. coli	Poor	13c	Apparently contained an excessive amount of moisture; abnormal color.
10	1,500,000	1,500,000	10%	None	10,000	B. coli	Good	13c	Meat freshly ground; good appearance.
					SECOND SERIES.				
1	52,000,000	61,000,000	25%	None	1,000	B. coli	Fair	15c	Freshly ground; appearance fairly good; no odor, but indications that it was not a good quality of beef; much facia.
2	35,000	54,000	8%	10%	Less than 100	None	Excellent	20c	Meat ground from round steak in presence of purchaser; appearance normal in every way; well handled.
3	150,000,000	108,000,000	20%	None	10,000	Staphylococci, B. proteus	Poor	13c	Not fresh looking; slight odor of stale meat; much fat; badly handled.
4	3,050,000	2,880,000	17%	12%	100	B. coli	Good	22c	Meat freshly ground from round steak; appearance, odor and taste normal; not properly handled.
5	33,600,000	32,000,000	4%	None	1,000	B. coli	Fair	15c	Apparently fresh meat; no stale odor; contained much fat and facia; not properly handled.
6	211,000,000	190,000,000	16%	None	1,000	B. coli	Poor	13c	Tough fiber and slightly stale odor, indicating poor quality of meat; every indication of poor handling; much fat.
7	5,000,000	7,500,000	13%	None	100	B. coli	Poor	18c	Meat ground in presence of purchaser; odor and appearance indicated inferior grade of meat used; not well handled.
8	6,900,000	4,700,000	8%	None	100	Staphylococci	Good	15c	Apparently fresh; no disagreeable odor.
9	67,000,000	85,000,000	14%	None	1,000	Streptococci Staphylococci	Poor	13c	Meat contained an excessive amount of moisture; slightly stale, odor; poor quality of meat.
10	1,000,000	950,000	9%	None	100	B. coli	Good	15c	Meat ground in presence of purchaser; cheap grade used; appearance normal; no disagreeable odor.
					LABORATORY SAMPLES.				
1	82,000	90,000	3%	5%	Less than 100	None	Excellent	20c	Made from good, clean, round steak; after grinding appeared normal in every way.
2	10,000,000	7,500,000	13%	None	100*	B.coli**	Poor	12½c	Made from the cheapest and most inferior grade of meat; was very tough; after grinding looked dark and fibrous; odor not agreeable.

*Gas-producing organisms in duplicate sample only.
**Not confirmed.

At best, however, such a test can only be regarded as an aid in passing final judgment on a food product of this kind. Thus, in the above tables, it will be seen that one sample recorded as "Good," contained many more than 10,000,000 bacteria per gram, and one recorded as "Poor" contained several millions less than that number. Two samples recorded as "Fair" were found to contain more than 30,000,000 bacteria per gram—one of them as many as 50,000,000. These results show the futility of attempting to decide as to the character of a meat product by physical tests alone, and emphasize the need of a more exact method, such as is afforded by a bacteriological analysis.

FACTORS CAUSING HIGH BACTERIAL CONTENT.

In any attempt to account for the large number of bacteria so generally found in hamburger and undoubtedly also in other kinds of chopped meats, four factors are to be considered.

First. The kind of meat used in making the finished product. It is a matter of common knowledge that hamburger steak is by many dealers utilized as a profitable method of disposing of the cheapest grades and of otherwise unsalable meat. This kind of meat is collected and often held under very unfavorable conditions until it can be made up into hamburger. This is plainly shown by the price at which hamburger is sold as compared with the prices prevailing for the better grades of meat. As will be seen from the table, the average price paid for the hamburger used in making this investigation was approximately 15½ cents per pound, while much of it was sold as low as 13c per pound. When we compare this with the average price at which the better grades of meat are sold, probably about 25c per pound, it can well be seen that a very inferior grade of meat is used for this purpose. It is significant, moreover, that the highest counts are found among those samples sold at the lowest price.

The effect of the use of inferior and otherwise unsalable meat on the bacterial content of hamburger is well shown in the analysis of the two laboratory samples reported above. In the first instance, a good, wholesome piece of round steak was obtained from a dealer who follows clean methods, and in the second case a very cheap grade of beef was obtained from a firm whose methods are not to be commended. In both cases the meat was brought to the laboratory and ground up under the same conditions. In the first sample a total count of less than 100,000 bacteria per gram was found, and in the second a count of 10,000,000.

If a profitable management of the meat trade depends upon the sale of trimmings, it would seem at least to be incumbent upon dealers to utilize this kind of material promptly and with due regard for its sanitary condition, in order that it may not become a menace to the public health.

The second factor is the increased susceptibility offered by ground meats to the growth and multiplication of microörganisms. Grinding mixes throughout the whole mass all organisms initially present. It also crushes the fibre, breaks up muscle sheaths and other connective tissue protection, with a resulting semi-liquid condition which intensifies the activities of all organisms present. Meats which would stand safely unground will, therefore, spoil quickly after grinding.

The third factor to be considered is the lack of cleanliness in the preparation and handling of the meat. Dirty meat grinders, knives, paddles and perhaps the dirty hands of the one who operates them, all contribute their share toward the bacterial content of the finished product. It can readily be seen, for example, how a meat grinder which is not frequently and thoroughly cleaned might become a breeding place for bacteria and thereby influence very materially the total counts of the meat which passes through it.

The fourth factor to be taken into account is exposure to contamination after the meat is prepared and ready for sale. It is quite the usual custom among meat dealers to make up large quantities of the various kinds of chopped meats and expose the same for sale on their counters. All of the dealers from whom we obtained samples follow this plan, except one who did not, at least, with hamburger. In this way the ground meat is, for several hours perhaps, exposed to aerial infection and other sources of contamination and very often to a temperature that is very conducive to the growth of bacteria. The plan of providing a means whereby meat can be protected from infection and high temperatures and still be kept in view seems as yet to have made but little impression upon meat dealers.

It is very evident, therefore, that great care and cleanliness must be exercised in the preparation of chopped meats. If this is lacking, high counts and rapid spoilage are certain to result.

EFFECT OF COOKING ON THE BACTERIAL CONTENT.

It is well to keep in mind that chopped meats, especially hamburger, are frequently eaten in a raw state. Moreover, preliminary experiments which we have made point very conclusively to the fact that the amount of cooking to which this form of meat is often subjected does not in many instances render it sterile. Thus, from a sample of meat which contained 150,000,000 bacteria per gram, cakes were made of the usual size. These were heated on a hot plate for ten minutes, both sides being thoroughly browned. Portions taken from the center of these cakes were then examined, with the result that 1,000,000 organisms per gram were still found capable of reproduction.

As proof of the need of a much wider resort to the bacteriological examination of chopped meats, it may be stated that bacteriological examinations test the degree of care and cleanliness taken by those who handle meat products just as conclusively as in the case of those who handle milk. What is needed is a more general resort to this method. During this investigation letters of inquiry were addressed to the health departments of ten of the leading American cities. They were asked as to whether they had conducted any bacteriological examinations of hamburger as sold in the markets of their respective cities and also whether they had any special regulations relating to the handling of this class of meat products. Replies were received from eight of these cities and all gave or indicated a negative answer to both of these inquiries.

STANDARDS AND SANITARY CONTROL.

Before we can hope to arrive at a proper sanitary control of meat supplies, it seems essential that a large number of bacteriological investigations be made under all conditions of trade and climate to determine as definitely as possible what number and kinds of organisms are consistent with clean but practical methods of production. This investigation indicates that it is entirely possible to determine the bacterial limitations sufficient to cover the organisms unavoidably present in properly handled meat, together with those incident to its final preparation for use. Such limitations, it would seem, should form the basis for establishing a proper standard for meat products.

Bacterial counts in excess of such a standard are evidences of a need for improvement, either in the materials or practices of an establishment, without necessarily indicating intentional carelessness which would warrant prosecution. It is clear that occasional failures may occur even in well conducted plants, but such failures do not justify the establishment of standards so lax as to permit of such failures becoming constant practices.

Marxer[3] who made a careful bacteriological study of meat concludes that meat which contains 1,000,000 bacteria per gram, or in which the proteus group is present in large numbers, is on the border line of decomposition and to be regarded with suspicion. Our own investigation of the subject leads to the conclusion that if the proper precautions be taken as to cleanliness and temperature, it is quite possible for the dealer to make up and deliver to the customer a hamburger which is well within the million mark. Weinzirl and Newton, after their study of hamburger, have proposed that a total count of 10,000,000 bacteria per gram be adopted as the bacteriological standard for this form of meat. In this, they have definitely sought to correlate bacterial counts with the recognition of spoilage by the senses. Meat which sows 10,000,000 organisms per gram, many of them being gas-formers and liquefiers, would seem to be perilously near to, if not quite in a state of putrefaction; and yet, such meat may not show any of the physical or chemical signs of that condition. It seems quite clear that bacteriological analyses give warning of spoilage before this is evident to the senses and that, therefore, they are capable of detecting the use of improper material or defects in handling before these become a serious menace to the consumer. These considerations point to the conclusion that Marxer was justified in setting his limit of tolerance for meat at 1,000,000 organisms per gram, and that even if applied to chopped meat, this standard would not be unreasonably exacting.

CONCLUSIONS.

Summed up briefly, the chief conclusions to be drawn from this investigation are:

1. That there is great room for improvement in the sanitary methods of many retail meat dealers and that much of the hamburger sold in the markets is entirely unfit for human consumption.

2. That among the reasons for the high bacterial counts found in many of the samples of hamburger, the practice of utilizing for this purpose meat which is often kept for too long a time and under circumstances favorable to the growth of microörganisms deserves first mention.

3. That the bacteriological test is the best and, in fact, the only method whereby we can detect deficient care and cleanliness in preparing and handling hamburger before physical evidences of decay are apparent to the senses.

4. That for the bacteriological analysis of meat for purposes of food control, the technique proposed by Weinzirl and Newton, especially their suggestions relating to the preparation of the sample, is the best that has yet been devised.

5. That there should be a general resort to the bacteriological examination of retail meat supplies, especially the chopped meats. This is urgently needed to determine the character of the meat being sold in the markets, the lack of proper methods on the part of dealers, and also for the purpose of stimulating the enactment and enforcement of proper local sanitary regulations for the control of meats.

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[3] Marxer, Betrag zur Frage des Bacteriengehaltes und der Holtbarkeit des Fleisches, 1903.

Frosted Oranges Deemed Adulterated.

Because of recent freezing weather in the South, officials in charge of the enforcement of the Food and Drugs Act have instructed inspectors to give particular attention to shipments of oranges in order to prevent the sale through interstate commerce of damaged fruit. Oranges are injured in flavor by freezing and soon become dry and unfit to eat. In the opinion of the officials, fruit which has been materially damaged by freezing is inferior and decomposed within the meaning of that act.

Any interstate shipment of oranges is deemed adulterated if it contains 15 per cent or more of oranges which, on a transverse section through the center, show a marked drying in 20 per cent or more of the exposed pulp. The following method for determining whether oranges have been damaged by freezing is used by inspectors:

> "Cut off with a long-bladed, sharp knife about one inch from both the stem and the navel end of the orange, leaving a portion of the orange about 1 to 1½ inch wide around its largest axis; slit the skin of this section across and simply pull the orange open with the fingers, endeavoring, if possible, to separate cleanly the sections of the orange. The frosted condition is shown by the dirty, yellowish, dry, sticky condition on the face of the sections, and is very easily recognized by comparison with unfrosted oranges."

The Manufacture of Commercial Yeast

By the Editor.

NOT all plants have the characteristics of the growing rosebush. Its beautiful and fragrant flowers, its green leaves and sturdy branches, its habit of providing for an increase in the rose family by forming seeds, and, finally, its habitat in the firm soil of our garden are all features typical of but a part of the vegetable kingdom.

Botanists in their efforts to systematize the subject matter of their science have worked out several methods of identifying the various growing things all about us. Some of the dividing lines appear to be a bit arbitrary and there are many instances in which the animal and the vegetable kingdoms seem to overlap. There are, for example, animals which, fastening themselves to rocks or other supports, remain stationary throughout life. Also there are plants supplied with the power of locomotion—the motile bacteria, for instance. But, generally speaking, the dividing lines appear to the lay mind as both rational and well justified. Certainly, as assumptions by which to work they have proven to be most helpful.

Photograph from The Fleischmann Company.

ANALYTICAL AND CONTROL LABORATORY IN A YEAST MANUFACTURING ESTABLISHMENT.

Botanical Divisions.

When one makes a new acquaintance one's first, and very natural, query is as to how the new-found friend makes his living. Biologically speaking, "What does he eat?" In the same way the botanist asks of every form of plant life "What does it live on?" It happens that this query has developed a broad distinction of great practical usefulness. A certain part of the vegetable kingdom lives on inorganic matter; a certain other part on organic matter. It also happens that all plants which live on inorganic matter—the mineral salts and moisture and the carbon dioxide gas in the atmosphere—have green leaves; the other plants are colorless, not being supplied with the chlorophyll which gives the green color to all leaves. Evidently there is some connection between an ability to transform certain parts of the air and soil to plant structure (which is essentially carbon and hydrogen and oxygen) and the chlorophyll of the green leaves.

And so plants in general are placed in two great divisions based upon their natural food supply—those which can exist on inorganic food and those which must have organic food. To the latter class belong the vast families of the fungi (mushrooms, etc.), the molds, the yeasts and all the various bacteria. As man, too, eats organic food it is straightway realized that apart from any other possible causes of friction we are bound sooner or later to quarrel with anyone who wants our food. The struggle for existence obtains here, as elsewhere, and many a fine tumbler of jam has been eaten by an aggressive family of microörganisms before the rightful owner had an opportunity to do likewise. The method of consumption is slightly different, the microörganism (*Penicillium glaucum*, perchance) performing the work with neatness and despatch and in a far more cleanly manner than could we. But the result is the same—the mold uses the sugar in the jam as a means of supporting life and permitting the perpetuation of its family.

The manner of propagation is another highly useful method of classifying plants. Most of the plants we know the best, from the impressive redwood to the dainty mignonette, form seeds. All flowers are but a clever and most delightful device for insuring the fertilization of the growing seed. Nectar even is nothing but a lure to the bee whose legs and wings are relied upon to pollinate the otherwise sterile seed. And from seeds, as everyone knows, grow mighty oaks. Here again it is easy to draw very useful dividing lines. It happens that those plants which live on an air and water diet insure their immortality by means of seeds; and the others make use of one or two of the following three methods of reproduction—budding, fission or sporulation. In ordinary terms these can roughly be understood as *growth by branching,* the branches soon dropping away from the main plant and constituting individual units of the colony; *growth by division,* the mother plant simply dividing into two daughter plants which in turn divide into four, and so on, in what the mathematicians call geometrical progression (the prefix, "schizo" met with in bacteriology means propagation by fission); and *growth by spores,* these being spherical or oval bodies something like seeds. They are formed when the plant finds itself without proper food. They are extremely resistant to unfavorable surroundings, the spores of certain bacteria holding the record for living through a degree of heat which would kill any other living organism. Yeast spores, however, are not particularly resistant to heat. In individual plants the spores vary in number from one to eight. After remaining dormant for almost any reasonable length of time they will, when placed in proper surroundings, come back to life and perform all the functions of their family. Some microörganisms, yeast for example, make use of more than one method of reproduction. In a sugary solution yeast buds freely and at a fairly fast rate. When placed in plain warm water yeast forms spores, which replaced in the nutritive medium will again burst forth from the mother cell and start their life processes by budding in the manner characteristic of their family.

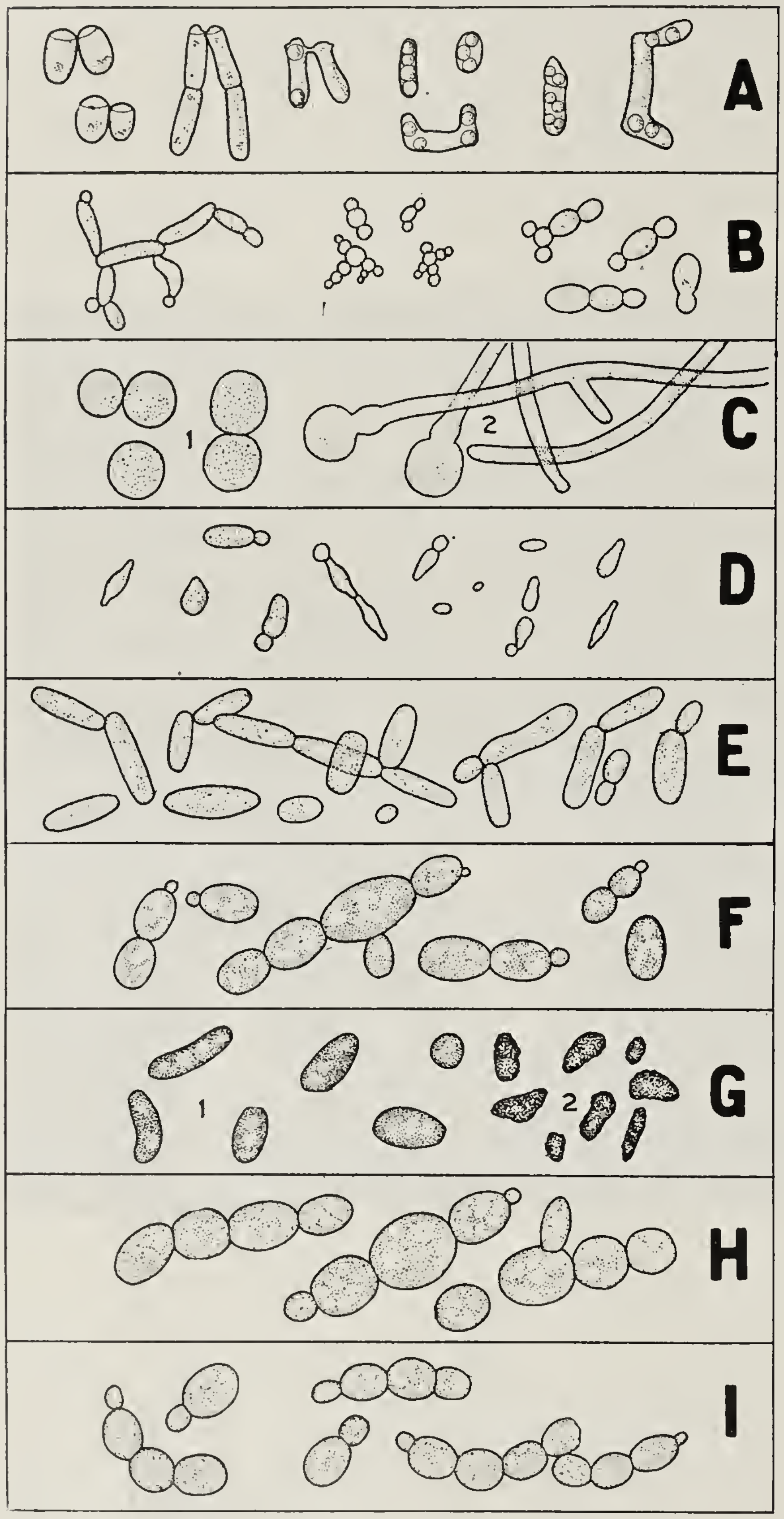

Illustration from Marshall's Microbiology.

VARIOUS YEASTS. A, *S. pombe. (After Lindner).* B, *Torulae. (After Pasteur).* C. *Mucor,* (1) spores, (2) germinating spores and mycelium. D, *S. apieulatus.* E. *Mycoderma vini. (After Bioletti).* F, *S. ellipsoideus,* young and vigorous. G, *S. ellipsoideus,* (1) old, (2) dead. H, *S. eerevisiae,* bottom yeast. I, *S. cerevisiae,* top yeast.

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Yeast a Fungi.

Thus it will be seen that yeast has been definitely placed by the scientists among those plants which, having no chlorophyll, must have organic matter or die and which reproduce by the combined method of budding and forming spores. The near neighbors on one side are the almost infinite varieties of bacteria, and on the other side, so closely related as to be considered by some investigators as members of the same family, the molds. The dividing line between molds and yeast is not drawn with absolute exactness, as the accompanying illustration shows, *Mucor* being classified indiscriminately as mold or as wild or pseudo-yeast.

As might be expected, molds, yeast and bacteria are often found associated together. The atmosphere, with the possible exception of that on mountain peaks and over the open ocean, is fairly charged with these tiny organisms. The tremendous importance of plants of microscopic size is not always fully appreciated. The sturdy oak maintains practically the same size for several generations and is an imposing sight, but it is by no means as active a form of life as are these tiny bodies, invisible to the naked eye, but so endowed with the power of reproduction as to be responsible for many phenomena which are often attributed to other causes. Definite knowledge concerning microörganisms is of recent origin and the research work of men who have confined themselves to this field has dissipated many a tradition and has often given rational explanation for some of the most striking so-called miracles. One enterprising microscopist has figured out that if the destructive agencies of sunlight, lack of moisture and other conditions which are fatal to the growth of microörganisms were suspended for a period of three days the habitable globe would be simply overwhelmed with the accumulated mass of tiny plants so small that no one of them could be seen without the aid of a strong microscope.

Home Grown Yeast.

If one places the juice of any fruit in an open container and lets it stand for a few days in a warm place it will ferment, as we call it, forming alcohol and at the same time throwing down a sediment which collects on the bottom of the container. Examining this sediment under a microscope is a most interesting operation. With a sufficiently high power glass great numbers of bacteria will be found, some of which are harmful but the great majority of which are harmless and many decidedly beneficial to our well-being. The yeast content may, and perhaps will, look very much like the accompanying illustration which, possibly, will bear a word or two of explanation.

To A has been given the name *Schizosaccharomyces pombe,* which means a fission propagating *Saccharomyces* (sugar-feeder). It is responsible for the *pombe* or *millet* beer made by the negroes in Africa. This yeast multiplies by forming a division near one end, the smaller part later on becoming a normal cell. Here also are to be seen spores formed in the cells. Its fermenting power is high, enabling the negroes of Africa to obtain a beer with a relatively large percentage of alcohol. *Schizosaccharomyces pombe* is a true, although wild, yeast.

B is a pseudo-yeast which produces little or no alcohol. It is called *Torula* and one form is given the credit of producing the special flavor of some English beers.

C has already been described, being *Mucor,* a mold with yeast-like qualities, (1) representing the organisms in spore state, and (2) the germinating spores and mycelium, or branches.

Photograph from The Fleischmann Company.

ACIDIFYING TANKS FOR "SOURING" THE MASH.

If our attempt at amateur yeast culture has been based upon allowing grape juice to ferment, undoubtedly the sediment produced will show many specimens of D, *Saccharomyces apiculatus,* as it is a true yeast which is found abundantly on grapes and most acid fruits. This yeast, under favorable conditions, grows rapidly, but as soon as 3 to 5 per cent of alcohol has been formed, its further growth is checked. It sometimes causes cloudiness in wine and by interfering with the growth of the proper yeast, injures the flavor of the wine.

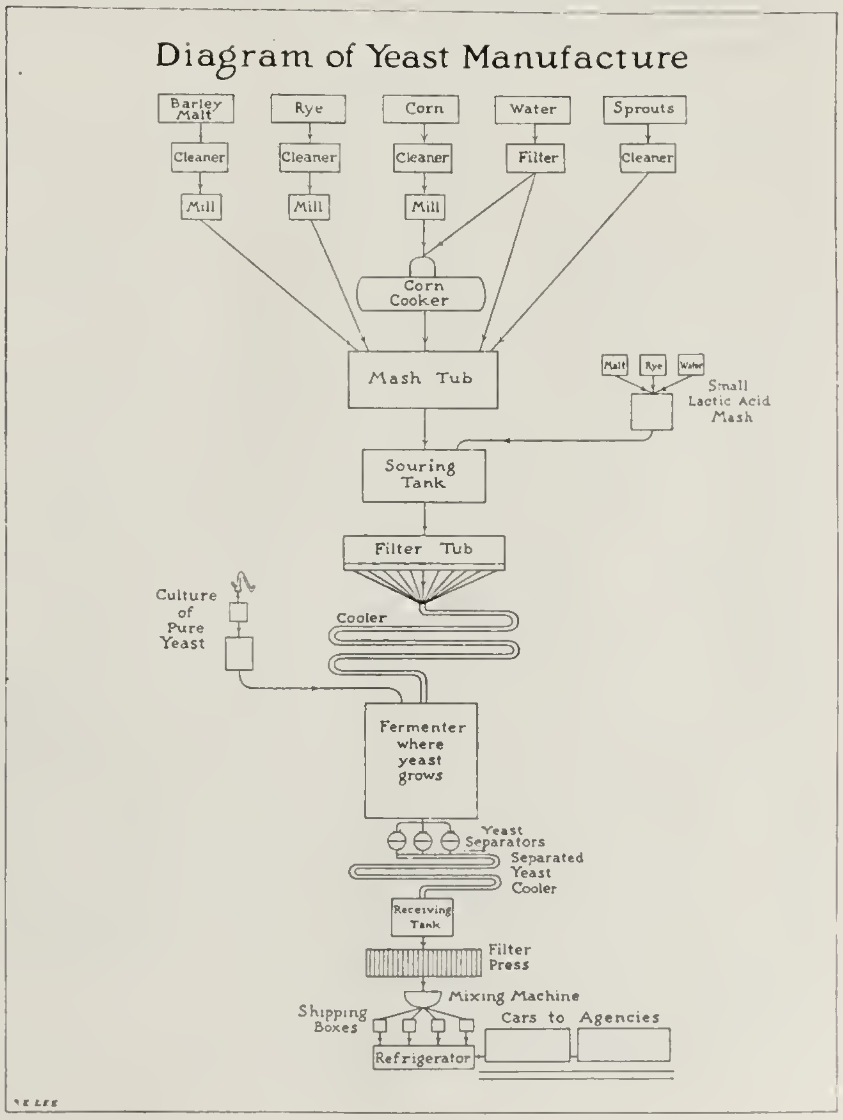
The pseudo-yeast, E, *Mycoderma vini,* is of the same general type as *Torula* (B). It produces little or no alcohol, and, on the other hand, causes complete combustion, by oxidization, of the liquid in which it is placed and therefore has a tendency to make beer or wine vapid.

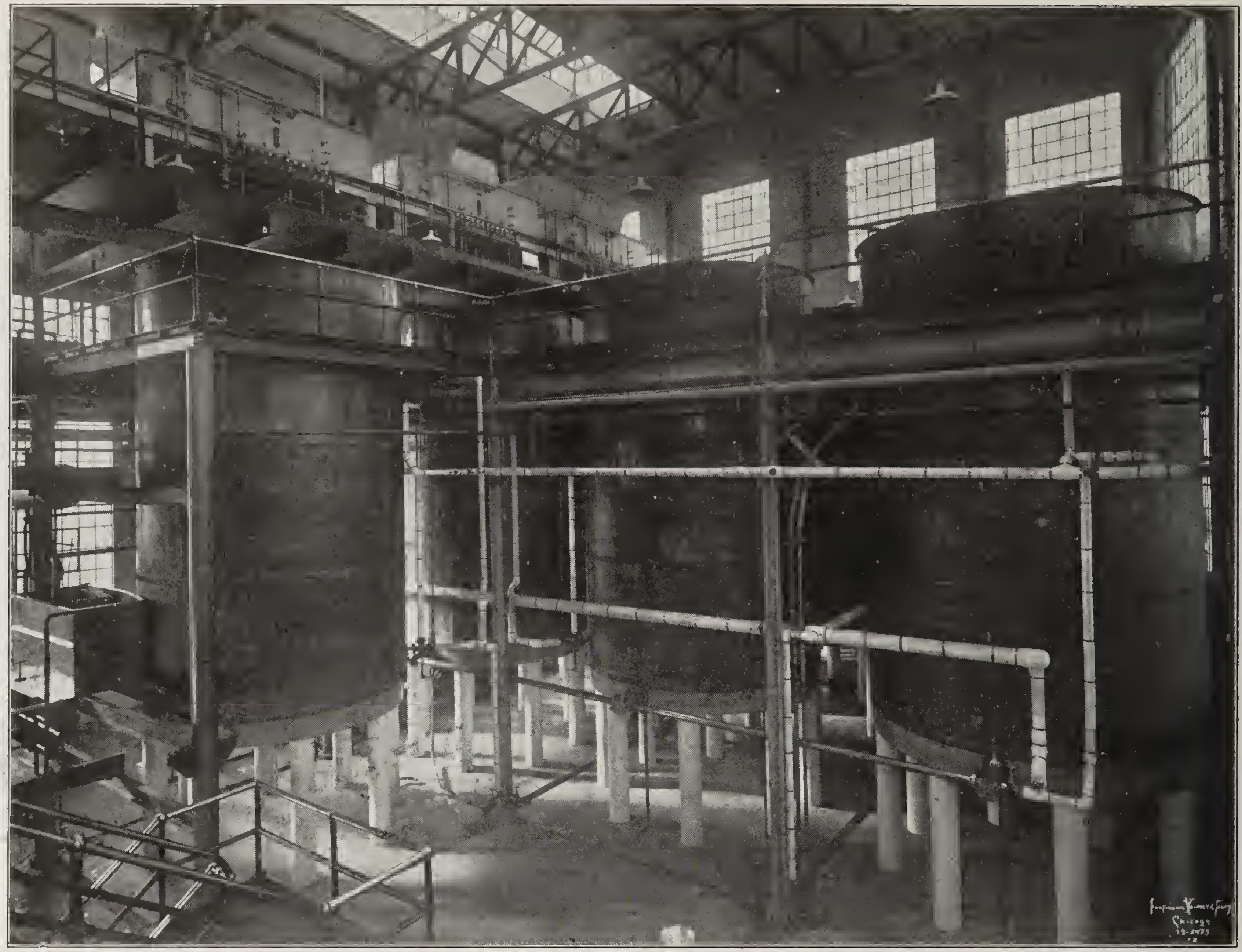
F and G are views of *Saccharomyces ellipsoideus,* the former being this true yeast, known as wine yeast, in a young and vigorous condition; and in the latter, (1) is the same yeast when old, and (2) when dead.

H and I are views of *Saccharomyces cerevisiae.* It is this type which the commercial yeast manufacturer cultivates with care and with intelligent attention to its likes and dislikes. In size it ranges from 7 to 9 one-thousandths of a millimeter (2.8 to 3.6 one-thousandths of an inch) in diameter.

Saccharomyces Cerevisiae.

The name means the sugar feeding yeast which is used in the brewing industry. While commercial yeast is now what is known as distillers' yeast, rather than brewers' yeast, the name *cerevisiae* is made to do for the several varieties of this sub-division. These yeast plants when placed in a solution which provides proper nourishment grow fast and steadily. Their process of growth is, as has been stated, by budding. While yeast will bud at both very low and com-





Photograph from The Fleischmann Company.

TANKS IN WHICH THE GROWTH OF YEAST IS CARRIED ON.

paratively high temperatures, the best temperature for this process is between 25° and 35° C. (77° and 95° F.). If natural yeast cells which are in a healthy condition are placed in a medium where there is abundant air and moisture at a comparatively high temperature and no nutrition, they will form spores. Yeast does not form spores when in a medium supplied with nutriment, nor is the yeast as it appears in the dried yeast cake in the form of spores. Such cakes are composed of active yeast cells, dried and embodied in a medium of corn meal. The cells on the exterior of the dried cake are often dead when the cake is used, but those inside the cake are in good condition, and after a certain period of recuperation are able to serve admirably all purposes for which yeast is used.

The Manufacture of Yeast.

The commercial manufacture of yeast consists in placing a selected variety in a medium providing the most appropriate nutriment and the best possible conditions for natural growth. He who would make yeast must keep his house in order, as the accompanying illustrations clearly show. The solution in which commercial yeast is allowed to grow most commonly is one made from barley, rye and corn. Other cereals, such as rice, have been experimented with but it has been found that it is necessary to use those with a relatively high protein content as yeast grown in a solution too low in protein is likely to be unhealthy and weak.

Malting Barley.

Barley is used in the form of malt, and the malting of barley is an interesting process in itself. It consists in allowing moistened barley to germinate and when the sprout has grown to about the length of the barley seed, to terminate the process of germination by means of heat. The time-honored custom of making malt is to spread the barley on the floor of a large, warm room and later to dry it in a kiln. The malt kiln is a conical building supplied with a fire box in its base, a perforated floor immediately above the fire box, and a fan at its apex, the purpose of the latter being to draw a current of hot air through the germinated barley and thereby quickly bring about an effectual drying. At present much barley is malted in revolving drums, the moisture being supplied to the grain by blowing into the drums air saturated with water. Germination is carried on in the drum and when it has proceeded to the proper point the malt is conveyed to other drums and there dried by means of heated air.

Preparing the Mash.

Cereals used in making yeast are, in all cases, cleaned with scrupulous care. Yeast making being a biological enterprise the matter of cleanliness is of paramount importance and no pains are spared to free the ingredients from dust and other foreign substances. The cereals are, all of them, ground into a coarse meal before being worked upon.

The first step in the preparation of what is known as the mash is to soak ground cereals in water. The mashing of the various cereals is carried on at different temperatures, corn for example being given a fairly high temperature, rye being added to the mash after the corn is thoroughly digested with hot water. The malt follows and at an even lower temperature and is held at a temperature of 60° C. (140° F.) for several hours, or until practically all of the starch in the corn, rye and barley has been changed to sugar by the diastatic power of the malt. At this point the mash is cooled to about 50° C. (122° F.) and inoculated with lactic acid bacteria.

Souring the Mash.

One purpose of acidifying the solution is to render soluble and thereby available as food for the yeast plants, the nitrogenous matter of the grain. This lactic acid is made on the premises by placing small amounts of malt and rye in a tub containing water at a temperature of 35° C. (77° F.)—the temperature most favorable for the development of lactic acid bacteria. This small mash is carried on until a marked state of acidulation is reached. It is a curious fact that a very small amount of lactic acid added to the main mash will prevent the development of lactic acid bacteria therein. According to Jago, the addition of as small an amount as 0.15 per cent of lactic acid will prevent lactic fermentation, although, on the contrary, if lactic fermentation be once started it will proceed until something like 1.5 per cent of lactic acid be formed. It seems to be strikingly analogous to the doctrine of antitoxins and other methods of medication based upon the theory of "like cures like." Consequently, the addition of lactic acid, as such, to the mash serves to prevent undue formation of that substance in the mash itself, and the amount of lactic acid added as such is considered a desirable component of the finished yeast.

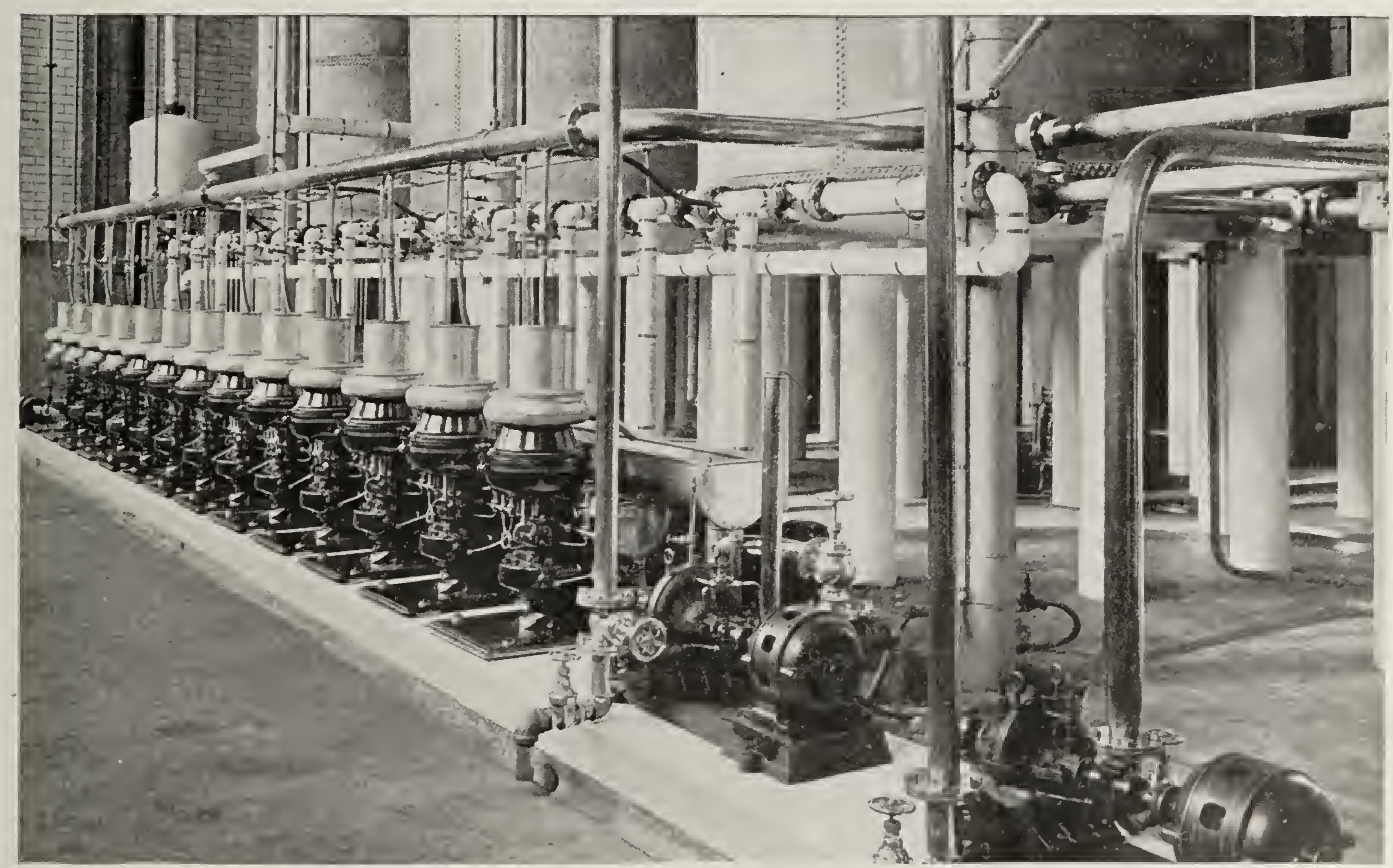
The acidified mash is next run through filters which extract the solid particles of the cereals. The filtered wort, as it is now called, should contain about 14 per cent of total solids. During the process of filtering the extract is cooled to about 50° C. (122° F.). The cooled wort is then inoculated, or "pitched," with a starter, which is a pure culture of yeast or, ordinarily, a small amount of yeast of the previous day's manufacture, and the fermentation commences. This is, in other words, the stage where the yeast plants commence to bud and multiply. Inasmuch as this process is in geometrical ratio, the early hours of fermentation do not result in the formation of as much yeast as do the latter hours.

The temperature is, by means of refrigerating pipes, held at the point most favorable to the growth of the yeast, oxygen is supplied by air blown through the fermenting tank by submerged pipes supplied with tiny vents, and in every way conditions are made favorable for the growth of the yeast. At the end of twelve or fourteen hours the yeast is forming so rapidly that great care must be exercised lest the forces of nature gain the upper hand and so stiff a solution of yeast be obtained as to render it impossible to run the product through a pump.

From the fermentation tanks the suspension of newly-formed yeast is pumped to a bank of centrifugal separators which are almost identical with the ordinary cream separator, and which send the yeast in the form of a heavy fluid to a cooling apparatus and then into a receiving tank, where it is held until ready for the filter press. This latter machine squeezes out part of the water, the "compressed" yeast of commerce getting its name from this stage of the process. Incidentally, *Saccharomyces cerevisiae* can withstand great mechanical pressure. In a test involving twelve microörganisms submitted to a pressure for ninety-six hours of 2000 atmospheres (approximately 30,000 lbs. to the square inch), *Saccharomyces cerevisiae* was one of the few survivors.

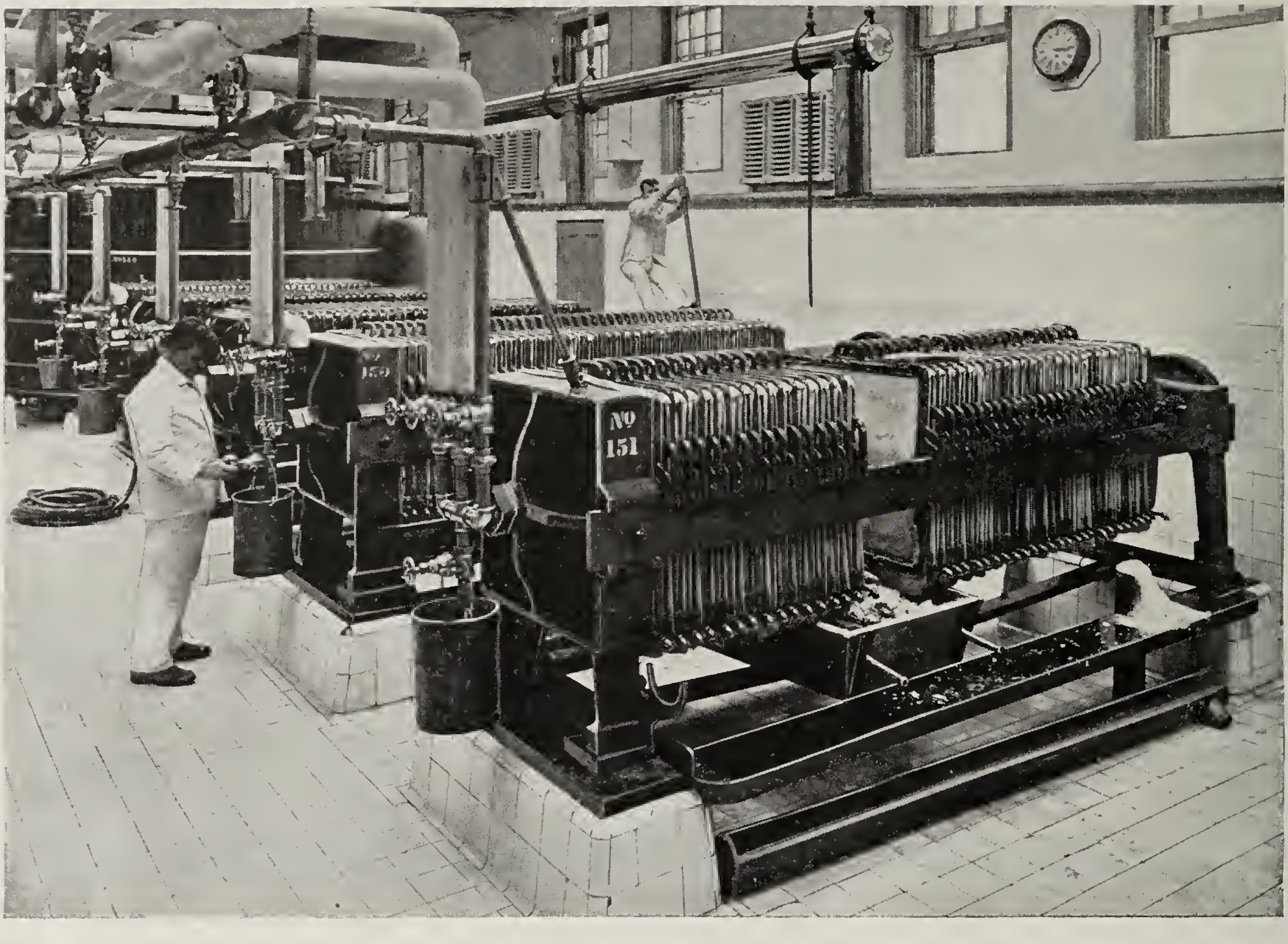
Starch in Yeast.

It is at this stage of the process that starch, if it is used, is added. According to Jago, the leading British authority on commercial bread making, there are many arguments in favor of a limited amount of starch in compressed yeast. He suggests that 20 per cent of starch be considered an allowable maximum for added starch without considering its presence in the light of an adulterant. Certain investigators have claimed that the admixture of starch in small amounts, not to exceed 5 per cent, has the peculiar property of abstracting sufficient moisture from the yeast itself as to bring about an increase, rather than a decrease, in the actual content of yeast in such a mixture. This matter was investigated thoroughly some years ago and as a result Federal Inspection Decision 111, issued in 1910, stipulated that the term "compressed yeast," without qualification, should mean distillers'



Photograph from The Fleischmann Company.

A BANK OF CENTRIFUGAL SEPARATORS FOR CONCENTRATING THE YEAST SOLUTION.



Photograph from The Fleischmann Company.
FILTER PRESSES USED TO DRIVE SURPLUS WATER FROM COMPRESSED YEAST.

yeast without admixture of starch, and that yeast to which starch had been added should be labeled "compressed yeast and starch."

Whether prepared with starch or not yeast is a quickly perishable product. For that reason an important feature of its manufacture is a system of distribution which shall enable fresh supplies to be sent to the grocers daily. The cakes of yeast intended for retail use are well wrapped with tin foil in an effort to exclude as nearly as possible all contact with outside air, although yeast made under conditions of absolute cleanliness is more likely to be free from putrifactic organisms of various sorts and for that reason keep sweet and wholesome for a longer time than is the case if not made under ideal conditions.

Essentials for Success.

In short, the essentials for successful yeast manufacture are high grade raw materials, both in the way of the proper culture of *Saccharomyces cerevisiae* and the various cereals upon which it feeds; absolute cleanliness in every step of the manufacture; and constant watchfulness as to temperature and other conditions. Those in the yeast industry make a practice of buying high grade cereal products, and many large yeast manufacturers maintain biological laboratories of which the average hospital might well be proud. All vessels used in the factory, from the largest to the smallest, are scalded as often as may be with live steam, the floors are of concrete so designed as to permit effective washing, instantaneous and thorough draining, and proper steps are taken to purify the air, freeing it from all undesirable forms of organisms as well as dust and other inorganic matter.

Compressed yeast, in its finished state, should be kept in a refrigerator and even freezing temperature does not harm it. Frozen yeast sent to our army in the Philippines was received in good condition. When subjected to very low temperature, the yeast cells remain alive although in a dormant condition. As soon as the temperature rises they are ready to multiply in the customary fashion. While many bacteria can withstand several hours exposure to a temperature as low as that of liquid hydrogen (-252° C., -422° F.), yeasts are not quite so resistant. However, commercial yeast would never be subjected to any such temperature as the foregoing.

By-Products.

As the vegetative growth of *Saccharomyces cerevisiae* produces both carbon dioxide and ethyl alcohol, and as ethyl alcohol can be oxidized to acetic acid, the basis of vinegar, many yeast manufacturers are also producers of vinegar. This subject will be treated in an article to be published later on. Sometimes it is deemed wise to sell as a by-product the alcohol produced by the growth of the yeast and, indeed, many of the large yeast manufacturers are also producers of very considerable amounts of ethyl alcohol. The alcohol is extracted from the liquid left behind by the yeast by means of distillation. Despite the rapid spread of laws designed to prohibit the manufacture of spiritous beverages, there will always be a steady demand for large amounts of ethyl alcohol. It is one of the best solvents known, especially for use with organic bodies, and it is an antiseptic of great value. It is also used in many ways in the arts and industries. Every prohibition bill takes pains to exempt from its terms alcohol used for scientific or industrial purposes. Its powers as a solvent are made practical use of in the manufacture of flavoring extracts in which a considerable amount of alcohol is quite essential in order to hold in solution the organic matters characteristic of the extract. In certain parts of the country the fact that alcohol freezes at a very low temperature is of practical value, as its use prevents the loss from broken bottles and consequently wasted goods which would otherwise certainly ensue each winter.

Fermentation

By Geo. L. Teller

of the Columbus Laboratories, Chicago

TO ferment is to boil. Many a farm boy has his first intimate acquaintance with fermentation when the cider barrel at the side of the old farmhouse begins to "work" and boil over. Sweet cider is soon changed to hard cider in this way. Breweries provide for the boiling over of the vat which holds the wort, and collect in a trough the scum in which the yeast floats buoyantly as fermentation progresses. Other impressions of fermentation are received by the farm boy when a jug of canned tomatoes explodes in the cellar, blows out the cork with a loud report and bespatters the ceiling. Old fashioned buckwheat cakes, when set at night, ferment vigorously and boil over the top of the jar in which the batter has been made. If the sorgum molasses maker neglects to make the molasses sufficiently heavy the result is that much of the molasses runs away and eventually becomes sour.

Fermentation has been known for these many centuries by the results of the work which it has done, by the wine, the rum, the beer and other spiritous liquors which have been produced, but it is only within a little more than half a century that the actual cause of fermentation has been worked out. Fruit juices, of whatever kind, when exposed to the air, take on the various phases of fermentation. The little plants which produce the fermentation find their way into the juice from the dust of the air. Even the grapes on the vine are made to ferment when the skin is broken and the yeast cells from beneath the vine blow into the crevice and become fixed. Yeast is a minute microscopic plant, of which between 20 and 30 different species are known to those who have made a study of the science of fermentation. The cell plant is so small that magnified from 250 to 300 times it will appear no larger than an ordinary pinhead. It has neither roots, stems nor branches, but consists of a single cell, much after the nature of a hen's egg. Ordinarily when it increases itself an extension grows from one side of it which eventually becomes as large as the parent cell and separates from it.

Much of the food which we eat must be changed into simple substances before the body can make use of it as a source of nourishment. Thus the starch of cereals, of potatoes, or of other vegetables must be converted into a sugar before it can be utilized by the body. This is done by ferments which are secreted by the body, as in the saliva and the small intestines. Beefsteak or fowl or fish when taken into the body must be broken down into simpler compounds before they can nourish us. The pepsin of the stomach and the pancreatin of the small intestines serve to bring this about. Fat must be split up and the lipase of the body serves to do this. These agents are called enzymes. They are products of the animal body. Plants also produce enzymes, especially low forms of plant life, like yeast, molds and bacteria. These enzymes act upon plant and animal substances with which they come in contact, and change them into new forms. When certain enzymes secreted by the yeast plant come in contact with cane sugar they split it up into two other sugars, which, for convenience and because of their origin as first known to man, have come to be known as fruit sugar and grape sugar. Malt, which is used in preparing wort for brewing, acts upon starch to change it to sugar, which sugar is known as malt sugar. Neither cane sugar nor malt sugar can be directly fermented, but must be changed to simpler sugars before fermentation takes place. Some yeasts secrete an enzyme which splits up malt sugar into the so-called grape sugar and then it is readily fermentable. Milk sugar is not fermentable because yeast has no enzyme which will split it up into simpler sugars.

In the main, yeast ferments sugars only, and the sugars which it can ferment are the grape sugar and the fruit sugar. Honey consists of these because the honey bee has split up cane sugar into these sugars just as yeast can do it, and they are the chief sugars which are found in most fruit juices. Although the yeast plant has been known for some time to be the cause of fermentation, it is only within the last three decades that it has been found how this fermentation takes place. It also is brought about by the action of a ferment or enzyme which has been separated from the yeast cell and made to produce all the phenomenon of fermentation afterwards. That remarkable enzyme has been given the name of zymase, and its only source appears to be that form of plant life which is commonly known as yeast.

When either grape sugar or fruit sugar is acted upon by zymase it is split up into two products in nearly equal quantities. One of these products is alcohol, the other is carbon dioxide. It is the formation and escape of the carbon dioxide that produces the appearance of boiling in liquids which are fermenting vigorously. The amount of these products which is produced from a given solution in which yeast is working is almost directly proportional to the amount of sugars which the solution contains, and, knowing the amount of sugar which is in the solution, the expert brewer or vinegar maker or distiller can calculate with great certainty the amount of alcohol which he should obtain from his raw material. Besides alcohol and carbon dioxide there is produced also a small amount of glycerine and acids, and sometimes under certain conditions there is produced from the raw materials used in fermentation a small quantity of alcohols other than the ordinary ethyl alcohol of the drug store. These other alcohols constitute what is known as fusel oil.

The conditions most favorable for fermentation are a suitable temperature and a dilute sugar solution in water, with or without the presence of certain other materials which serve as food for the yeast plant, notably small quantities of mineral matter and some article which will supply to the yeast plant the protein which we get for our bodies when we eat flesh or eggs or vegetables which contain that material in form suitable for our use. If the solution of sugar is too concentrated, no fermentation will take place. For this reason a heavy syrup does not ferment, whereas it would quickly ferment if we should add to it water in equal quantity or more. So, too, fermentation is checked or stopped when we have a considerable proportion of alcohol produced in the solution which has been fermented, or it may be checked by the presence of acids, as acetic acid or strong vinegar. Fermentation is also prevented by the presence of essential oils of spices, such as cloves and cinnamon. Tomato catsup, for example, is often made with an excess of these spices, together with vinegar, for the purpose of preventing fermentation which would otherwise readily take place after the bottle was opened and the contents exposed to the air. Fermentation is also checked by the presence in minute quantities of certain other plant products, such as benzoic acid and salicylic acid, the presence of a small fraction of 1 per cent of which will effectually stop the growth of the yeast plant. The practice of canning fruits and vegetables for food purposes depends upon the killing of the yeast plant by the use of heat and the exclusion of other yeast plants from the product after it has cooled by keeping it in hermetically sealed containers. If a good quantity of sugar be present, the preservation will be more perfect, because any yeast cells which may have escaped destruction by heat will find it much more difficult to grow in the concentrated liquid. A low temperature is also unfavorable for fermentation, and this is one of the reasons why foods are put in cold storage to preserve them.

Man has made extensive use of the phenomenon of fermentation for practical ends. The uses and abuses of the large number of types of alcoholic drinks are well known. Alcohol serves a useful place in medicines and in the arts. Possibly some day when the supply of mineral oil has become exhausted it may be necessary to resort to the use of alcohol as a substitute for the purposes for which gasoline is now used.

Vinegar owes it origin to fermentation. In earlier times it was made largely from cider, by allowing the "hard cider" to stand for a long time, and during this time the alcohol which had been produced in the cider during its working was changed into acetic acid by the action of another plant which in mass is known as "mother of vinegar."

The carbon dioxide of fermentation is identical with the carbon dioxide which is produced when any acid acts upon marble or when coal or wood burns in the air, and much of the liquified carbon dioxide which is now an important article of commerce as a source of carbonic acid gas for carbonated beverages and for some other purposes, has been in the past collected from large fermenting vats in breweries where immense quantities are produced in the course of a single year. Fermentation also serves a most useful purpose in the production of bread and some other articles of food, and a discussion of this phase of fermentation will be given in the April issue of this Journal.

Emil Christian Hansen.

AMONG the many workers in the field of microörganisms one of the leading places should be given to Emil Christian Hansen of Denmark. During the eighth decade of the nineteenth century his investigations along the line of the fermentation industry were most important. He devised methods for securing pure cultures of yeasts, starting from a *single cell,* showed that yeasts produced diseases in beer and established the method of identifying yeasts by observing their microscopic appearance, the formation of ascospores and the production of films.[1]

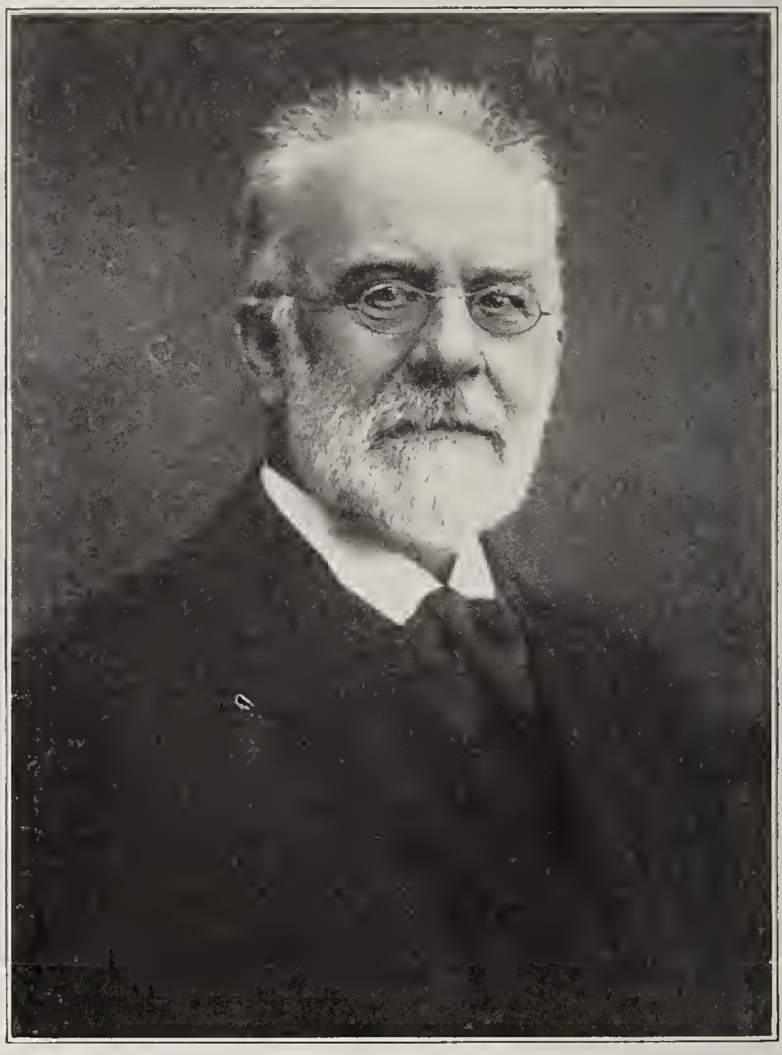
It is principally due to the researches of Hansen that we are able to classify yeasts into species and races with such accuracy as is now possible. Hansen's fundamental idea was that the shape, relative size and appearance of yeast cells, taken by themselves, were not sufficient to characterize a species, since the same species under different external conditions could assume very different forms. Further, although, for example, a microscopic field of pure *S. cerevisiae* could be distinguished by its appearance from pure *S. pastorianus,* yet in a mixture of the two it is not possible to distinguish individual cells of the one from those of the other. *S. cerevisiae* forms at times sausage-shaped cells, while *S. pastorianus* occurs to a certain extent as round or oval cells. Some other method, then, than microscopic examination is necessary for their differentiation. By investigation of the conditions under which different races of yeast formed ascospores, Hansen was enabled to arrive at a mode of analysis of yeasts. He ascertained with exactness the precise conditions necessary for the obtaining of ascospores, and thus sums up his conclusions. The cells must be kept moist and have a plentiful supply of air; further, to form spores, they must be young and vigorous. For most species a temperature of 25° C. (77° F.) is the *most* favorable; for all species this temperature favors their development.

Hansen found the process of spore-formation to vary in different species. *S.S. cerevisiae, pastorianus* and *ellipsoideus* germinate into spores in essentially the same way. *S. ludwigii* and *S. anomalus* have each a separate and distinct mode of spore growth.

While all species form spores at 25° C. (77° F.), Hansen set himself to determine whether with different species there was any difference in their behaviour under varying conditions of temperature. In making observations, he registered the time when the cells first showed distinct indications of spore formation. The limits of temperature for all species are between from 0.5° to 3° C. (0.9° F. to 5.40° F.) and 37.5° C. (100° F.). At the highest temperature all species develop first indications in about 30 hours, and show very little difference in time at 25° C. (77° F.); but with lower temperatures very evident differences occurred. Hansen also found that there were differences in anatomical structure of spores that could be utilized for analytic purposes. In the so-called cultivated yeasts, *S. cerevisiae,* employed for brewing, the spores have a distinct membrane, with non-homogeneous granular contents and a definite vacuole. In the case of the so-called wild yeasts, the spore wall is frequently indistinct, the sell contents homogeneous, and the vacuole absent.

Hansen investigated very closely the following six species of yeast, particulars of which follow:

Saccharomyces cerevisiae I., English top-fermentation yeast. Ferments glucose and maltose very vigorously. Spores strongly refractive to light, walls very distinct; size, 2.5-6 μ.



Photograph from Wahl-Henius Institute.
EMIL CHRISTIAN HANSEN.

S. pastorianus I., bottom-fermentation yeast; frequently occurs in the air of fermenting rooms; imparts to beer a disagreeable bitter taste and unpleasant odor; can also produce turbidity and interfere with clarification in fermenting vat. Size of spores, 1.5-5 μ.

S. pastorianus II., feeble top-fermentation yeast; found in air of breweries; apparently does not cause diseases in beer. Size of spores, 2-5 μ.

S. pastorianus III., top-fermentation yeast, one of the species which produce *yeast-turbidity* in beer; but in certain cases clarify opalescent worts. Size of spores, 2-5 μ.

S. ellipsoideus I., bottom-fermentation yeast; occurs on *ripe grapes.* Size of spores, 2-4 μ.

S. ellipsoideus II., usually bottom-fermentation yeast; causes *yeast turbidity,* more dangerous than *S. pastorianus III.;* also imparts a sweetish, *disagreeable, aromatic* taste to beer, and a *bitter, astringent after-taste.* Size of spores, 2-5 μ.

It will be noticed that Hansen sub-divides both *S. pastorianus* and *ellipsoideus.* He also sub-divides other species into different races or varieties. In addition, he has investigated the conditions of film formation and other properties which aid in the task of yeast differentiation.

Passing for a moment the work of different investigators in review, Pasteur freed yeasts from weeds or foreign vegetable growths of the bacteria group. Hansen first eliminated wild yeasts as a fruit grower might eliminate crab-apples and other wild fruits from his orchard. Lastly, he has devoted his attention to the growth of distinct breeds of cultivated yeast, each specialized for particular purposes.[2]

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[1] Microbiology, Chas. E. Marshall, P. Blakiston's Sons & Company, Philadelphia, Pa.

[2] The Technology of Bread-Making, William Jago and William C. Jago, Bakers' Helper Company, Chicago.

Laboratory Control in Yeast Making

By H. V. Cadwell

WHEN yeast is placed in a warm, sugary solution its vegetative growth converts the sugar into two quite different and differing substances, namely, alcohol and carbon dioxide. The reaction produced by yeast fermentation is represented chemically as

$$C_6H_{12}O_6 = 2C_2H_6O + 2CO_2$$

(sugar) (alcohol) (carbon dioxide)

The brewer or distiller is interested in the alcoholic end product, the baker or the housewife in the gaseous end product, and the yeast manufacturer is interested mainly in the vegetative growth by which the respective end products are brought about.

Compressed yeast is defined as distiller's yeast with or without admixed starch, the presence of starch being indicated on the label. Dry yeast is a mixture of fresh yeast with starch or meal which has been worked into a stiff dough, cut into cakes and dried, either in the sunshine or at a moderate temperature under reduced pressure. Such yeast when dry will keep almost indefinitely. Brewer's yeast, in liquid form, is used now but in rare cases as, for example, when a bake shop is located near a brewery.

When fresh, compressed yeast should have, according to Leach, "a creamy, white color, uniform throughout, and should possess a fine, even texture; it should be moist without being slimy. It should quickly melt in the mouth without an acid taste. Its odor is characteristic, and should be somewhat suggestive of an apple. It should never be cheesy, such an odor indicating incipient decomposition, as does a dark or streaked color." In addition to examination by the senses of sight, smell, taste and touch there are but two tests usually made on yeast. The first is a microscopical test to determine the percentage of dead cells, and the other a fermentation test to measure the available carbon dioxide.

Microscopical Test.

Mix a little yeast with water and place a drop of the mixture on a glass microscope slide under the microscope and mix in a very little dilute aniline dye such as 1 gm. of fuchsin in 160 cc. of water containing 1 cc. of alcohol. After the cover glass is placed over the drop and the microscope adjusted the small circular and oval yeast cells will at once become apparent. The dead cells will be stained by the dye, while the living cells will be colorless. A rough estimation of the percentage of dead cells may be made in this manner.

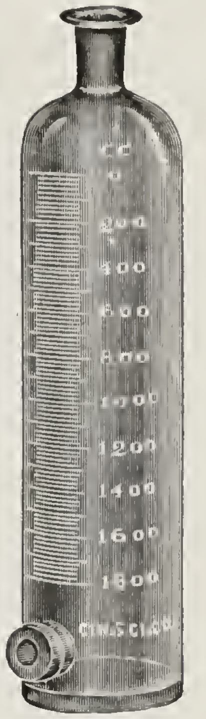
Fermentation Test (Gravimetric).

The most nearly exact method of determining the available carbon dioxide is that of Meissl, described in "Food Inspection and Analysis," by Albert E. Leach. This consists of growing the yeast plants in a sugar phosphate solution contained in a flask and determining the loss of weight due to the evolved carbon dioxide. The sugar phosphate mixture consists of 400 gms. of pure sugar, 25 gms. of ammonium phosphate and 25 gms. of potassium phosphate. Weigh 1 gm. of the yeast to be tested in a 100 cc. wide-mouth flask, add 4.5 gms. of the sugar phosphate mixture and 50 cc. distilled water. Stop with a two-hole rubber stopper carrying a filled calcium chloride tube and a glass tube long enough to reach almost to the bottom of the flask and still project a few inches from the top. The tube should be closed by a short rubber tube and glass plug. When the above apparatus is assembled, it is carefully weighed on a balance sensitive to 0.1 mg. and placed in an incubator or constant temperature water bath at 30° C. (86° F.), where it is left undisturbed for 6 hours. At the end of this period the flask is quickly cooled, the plug removed from the glass tube and a current of air drawn in through it and out the calcium chloride tube by suction. When the interior of the flask is free from carbon dioxide the flask is disconnected from the pump, the glass plug attached and the whole carefully weighed. The loss in weight is the amount of carbon dioxide produced during fermentation.

Microscope Suitable for Yeast Examination.

Fermentation Test (Volumetric).

A less accurate method of determining available carbon dioxide but one requiring less apparatus is the volumetric method. The yeast is weighed up and placed in a bottle of about 16 oz. capacity with a sugar solution suitable for fermentation. This is then tightly stopped with a one-hole rubber stopper with a short length of glass tubing passing through it and connected by a piece of rubber tubing with a similar tube and stopper in the top of a graduated gas collector with an air trap connected to the lower tubulation, which has previously been filled with water. The bottle containing the yeast is then placed in a bath of water at about 30° C. and allowed to ferment for 6 hours. As the carbon dioxide is evolved it is drawn over into the graduated cylinder and an equivalent amount of water is delivered from the trap. The difference in the readings on the graduated cyclinder gives the volume of carbon dioxide evolved.



Gas Collector.

Equipment Necessary.

1 analytical balance, sensitive to 1 mg.	$35.00
1 set of analytical weights, 1 mg. to 50 gms.	7.00
1 extraction flask, 100 cc.	.15
1 calcium chloride tube, 6"	.12
1 rubber stopper, 1-hole, for calcium chloride tube	.06
1 rubber stopper for extraction flask, 2-hole	.10
1 glass tube with rubber connection and plug	.06
1 incubator, 15"x12"x12" inside, electric	35.00
1 microscope, 2 eye-pieces, triple nose-piece, oil immersion	58.95
24 microscope slides, 3"x1"	.25
½ oz. cover glasses, ¾" round, No. 2	.65
1 gas measuring bottle	4.00
1 bottle, narrow neck, 16 oz.	.07
1 bottle, wide neck, 8 oz.	.05
1 set of connections for above	.50
1 Chapman filter pump	1.25
1 coupling for smooth faucet	.50
3 ft. pressure tubing, ¼"	.36
4 watch glasses, 2½"	.24
1 Barnes dropping bottle	.10
1 glass-stoppered wide-mouth bottle, 16 oz.	.18

Chemicals Necessary.

½ oz. fuchsin crystals	.80
1 lb. sugar	.15
4 oz. ammonium phosphate (chemically pure)	.30
4 oz. potassium phosphate (chemically pure)	.45
1 lb. calcium chloride for drying tubes	.60

Address of W. B. Barney, Dairy and Food Commissioner, Before Association of Ice Cream Manufacturers, Burlington, Iowa, January 16.

When asked to address you at this, the annual meeting of your association, I was rather loath to accept the invitation, knowing as I do that I should be unable to give you much information of real value, especially as to the methods employed in manufacturing your product.

Ice cream can no longer be termed a luxury. It has come into such general use in our homes, hotels and better class of cafes as to be looked upon as a common table dish. Its value as an easily digestible, healthful and palatable product is no longer questioned. There is every reason to believe that the demand is sure to increase. As evidence of this, permit me to quote the following from my 1916 report, copy of which will be in your hands within a few days:

"The manufacturers of ice cream have made rapid progress during the year. The season previous was a very unfavorable one for this important industry, but the past summer afforded seasonal conditions, leaving little further to be desired.

"The state may feel proud of the rapid progress made by many of our ice cream manufacturers as regards the sanitation of their plants and the improved methods instituted for handling both raw and manufactured products.

"Our state statutes several years ago defined ice cream and established for it a minimum fat content. This standard has been earnestly complied with by our Iowa manufacturers and has resulted in a standardization of the ice cream business.

"The manufacturer of ice cream of uniform quality and of definite food value has secured for it the confidence of the consuming public. Ice cream has rightly become a staple article of food for summer consumption, both as a toothsome edible and as a substitute for the many less digestible dishes served as a noon lunch or as a part of the regular meal. That the public appreciates this situation is attested by the fact that the history of the ice cream industry is one of ever-increasing output.

"The production for last year was 5,318,000 gallons. This production, which is 2,896,613 gallons greater than the previous year, shows a per capita consumption of about 2⅓ gallons.

"Since the copy of this report was turned over to the state printer, the United States Supreme Court has decided the case which originated several years ago relative to the state standard for ice cream.

"The decision of the court is to the effect that the General Assembly not only has the right to set standards for food products sold in this state, but that the present state standard of a minimum of 12 per cent of milk fat in ice cream is a fair and just standard. We are glad that this matter has been disposed of, as it has occupied considerable time in the courts and has cost the state and the manufacturers who chose to contest the law considerable money. I believe that at the time the case occupied the attention of the lower courts the manufacturers believed they were in the right and that the 12 per cent standard was too high. Since that time, however, they have seen the ice cream industry grow as a result of public confidence in a product of so high a quality as that now manufactured in this state. I believe that none of our manufacturers would now welcome a lower standard."

I have frequently said in talks and at other times that as much or more good comes to those in attendance at conventions of this kind from contact with those you meet as in any other way, or from hearing long-winded papers. I pity the man who can't learn a little or get a few pointers from the other fellow, though the other fellow may not have the same fund of general information he possesses.

With this thought in mind, permit me to briefly relate my experience in the ice cream business. I became dairy and food commissioner in 1910. The Iowa commissioner automatically becomes a member of the State Board of Agriculture. It fell to my lot to have charge of the dairy exhibit at the Iowa State Fair. In connection with this exhibit, which is made in the Agricultural Hall, I found that it had been the plan of the board to operate an ice cream stand during the fair. No special pains had been taken to make this place attractive, and reports on file in this office for 1909 show that receipts for that year in this stand amounted to $331.45. We made up our minds that the business could be improved, first by giving the public the very best article of ice cream to be secured. We bought this on the open market and when the manufacturer quoted us his price, we never asked him how much less he could make the price, but we did frequently make the inquiry as to whether he could make the cream better. We have always bought what we thought the best cream to be had.

Second, we had the place fixed up so that we could serve the product in a perfectly sanitary way. New cement floors with good drainage were put in; white enamel containers were installed; courteous and competent help was employed to serve the product; nothing but the finest product to be secured was handed out at 10c per dish, this having always been the price.

The business increased gradually for the six years until the receipts for last year amounted to $2,041.20. There are as many or more places on the ground that sell ice cream as in former years, but I am told that from one-third to one-half of the cream goes out over this counter.

My conclusions drawn from this experience are, that it pays to put out a high class product in a sanitary way, and that the public will find a place of this kind.

It is my opinion that as manufacturers you are going to be obliged for several years to base your prices on the present high value of raw materials entering into your product.

I think that prices on materials entering into your and other food products may decline to some extent with the close of the war, but I predict that the day of low-priced agricultural products has gone never to return. We may as well adjust our business to conditions as they exist as to expect any great change in the near future.

The sanitary law has been most helpful in many cases in doing away with existing evils. In October we mailed out a blank to all of the ice cream manufacturers. One of the questions on this blank was, "Have the conditions of returned empty containers improved within the past year?" in answer to this about 60 per cent said "yes," 25 per cent said "not much" and about 15 per cent answered "no." This was quite a marked improvement over former years.

When you are having trouble of this kind, if you will notify the department we can adjust the matter without divulging the source of our information or using your name.

The department will ask for some amendments to our dairy laws this winter. They are substantially as follows:

"That all Babcock test licenses be good for one year from date of issue in place of one year from May 31st."

"That operators of these tests be permitted to appoint a substitute for two weeks in place of one."

"That the minimum fine for the violation of this law, which is $25.00, be reduced to $10.00, the same as in many other laws enforced by this department."

Another provision reads: "Any person who shall fail to thoroughly cleanse any ice cream container, cream or milk can, or like utensil, after having emptied the same and before it is returned to the manufacturer or dealer, shall be deemed guilty of a misdemeanor and shall be punished and no person shall use a milk or cream bottle as a container for any unclean substance or material nor shall any person place in any milk or cream bottle any kerosene, turpentine or any other substance having an offensive or lasting odor." We think your association should be interested in these things, and we wish to assure you that we will highly appreciate your support of this measure.

Prospects for the future in your business seem bright. The reputation you have made for putting out sanitary, high class goods will be sure to make your products more in demand than ever.

I desire to have it understood that the department is interested in your success individually and collectively, and if you do not get the service you are entitled to, it will be for the reason that you do not make your wants known.

I thank you for your invitation to be with you and wish you every success.

With the Wholesale Grocers

The National Wholesale Grocers' Association has recently sent to its members bulletins on "Food Legislation," "Contracts" and "Credits." The first was prepared through the joint efforts of the Association's counsel and its pure food legislative committee; the bulletin on "Contracts" is the result of much time and effort on the part of those in whose hands its preparation was placed; and the last named bulletin presents the best thought obtainable, both within and without the Association, on the important topic of credits.

Mr. O. C. Mattern, chairman of the food geography committee of the National Wholesale Grocers' Association, announces that the book on that subject will be ready for distribution some time previous to the annual convention in May.

At the meeting of the Michigan Bean Jobbers' Association, held in Detroit, Michigan, January 24-25, the wholesale grocers were represented by Mr. B. B. Crane of the executive committee of the National Association.

On January 25-27 the National Foreign Trade Council held a meeting at Pittsburgh at which the grocers were represented by Mr. Fred R. Drake who delivered an address on the subject of metric weights and measures.

During the National Canners Association convention at Cleveland, held the week of February 5, the canners conference committee of the National Association met with a similar committee of the National Canners Association.

The executive committee of the National Association met in New York, January 29-30, the meeting being well attended and devoted to many matters of great interest to the members of the Association. The membership committee through its chairman, Mr. Cushman, reported that up to the first of the year 37 members had been enrolled as compared with 12 for the preceding year. The treasurer reported that the finances of the association were in good shape.

Mr. Theodore F. Whitmarsh, president of the National Association, speaking before the canners in convention assembled at Cleveland, February 5, on the subject of "Modern Methods for Advancing the Welfare of the Grocery Trade,' brought out the point that success in any lines of effort, even those based upon a competitive system, necessitated a certain amount of co-operation. He paid a tribute to the great value of trade associations and to co-operative work among such associations.

President Whitmarsh devoted some time to the necessity of educating the various elements involved in trade, dilating at length upon such points as educating the competitor, educating the consumer and educating the public. The question of economy in distribution was treated in keeping with the present-day interest in that subject, as was the very timely topic of the prosperity of the small merchant who at present finds his existence threatened by the chain stores and other products of the twentieth century.

Before closing, Mr. Whitmarsh told of the many advantages of the metric system of weights and measures and urged the canners to follow the lead of the Wholesale Grocers' Association and formally endorse the movement looking toward the compulsory use of this system of weighing and measuring commodities.

Witn Counsel.

Under this heading are given the gist of legal opinions given by counsel for the National Wholesale Grocers' Association. Among those recently published of interest to those in the food industry are the following:

TOMATOES IN PUREE.

Q. May tomatoes in puree be sold under label branded "tomatoes" without violating the law of California or the Federal law?

A. Although we usually have on hand the food laws and latest rulings thereunder of all the states, we do not find in California any recent ruling relating to tomatoes.

However, as the State Board of Health charged with the enforcement of the California food law follows the rules and regulations adopted for the enforcement of the National Law, we presume that the rulings of the Bureau of Chemistry of the United States Department of Agriculture on the subject of tomatoes in puree have been followed in that state. Under these rulings it would be necessary in the case of tomatoes packed with puree to brand upon the label a complete description of the contents by some such phrase as "tomatoes with puree" or "packed with puree." Either phrase, we believe, would be lawful.

Marketing Creamery Butter.

The standardization of butter packages and the production of a more uniform quality of product are two requirements of butter markets to which creameries need to give consideration if they wish to improve conditions for the marketing of their butter, say specialists of the Office of Markets and Rural Organization of the U. S. Department of Agriculture in Department Bulletin 456, recently issued. On the Pacific Coast a "cube," varying in capacity from 63 to 80 pounds of butter, is used. The creameries of the Middle West usually use the 63-pound ash tub, while in New England spruce tubs varying in capacity from 10 to 60 pounds are used. On the Pacific Coast a long, flat carton is used as a consumer's package, while in New England a flat, rather broad carton is used. In the Middle West a standard carton 2¼ by 2¼ by 5⅝ inches is used.

At certain seasons the market specialists found on the markets an increasing quantity of an inferior quality of butter which is known as "under-grade." This inferior quality, it developed, is often due to the use of cream of poor quality and, to some extent, to faulty methods of manufacture. The more common faults observed in the quality of this butter were soft, leaky, open body; too much or not enough salt; too high or too light color; metallic flavors; high acid, unclean, and old cream flavors; streaks and mottles; mold on butter; also moldy and dirty packages. Butter possessing such faults, although not always classed as "under-grades," is often discriminated against by the critical buyer. During those seasons when the market receipts are heavy and the market is weak such butter can be moved only at low prices, and often sells at 6 to 8 cents below the better grades.

Approximately one-tenth of the butter received in the larger markets is placed in cold storage, the bulletin states, and is held for an average period of six months. The cost of storing butter approximates one-fourth of a cent per pound per month. In the market distribution of creamery butter there is at present a tendency toward the more general use of consumers' packages, usually of the 1-pound size.

Suggestions for the 1917 Fly Campaign.

The Missouri College of Agriculture has received many requests for suggestions in conducting fly campaigns. In Press Bulletin 275 the following measures are recommended:

1. Kill as many flies as possible when they appear in spring. These first flies are the parents of the millions of germ-laden flies that will make life miserable throughout summer. One fly killed early in the spring is equal to millions killed in August or September.

2. Endeavor to prevent flies from breeding or feeding on the premises. Some flies will escape because they will breed in decayed vegetable matter or in the droppings of animals in the pastures. However, these will be almost negligible.

3. Fly traps are essential. They catch the flies coming from breeding places and thus prevent their migrating to the house.

4. Enlist the co-operation of all dealers in food supplies. Show them the danger from flies and what may result from unsanitary surroundings of their premises. If necessary, patronize only those dealers who keep their premises and their products properly screened. They will soon clean their premises and eliminate flies if the campaign is brought to them in this financial light.

5. Endeavor to obtain community co-operation in the fly campaign. Do not be discouraged if a few people cannot be induced to clean up their premises. As soon as they see that the campaign is effective they will readily co-operate.

Recent Patents

The following patents of interest to readers of this journal recently were issued from the United States Patent Office. Copies thereof may be obtained from R. E. Burnham, patent and trade-mark attorney, 882 Bond Building, Washington, D. C., at the rate of 20c each. State number of patent and name of inventor when ordering:

1,212,586. Cream-storing cabinet. Theodore L. Valerius, Fort Atkinson, Wis., assignor to Creamery Package Mfg. Co., Chicago, Ill.

1,212,614. Art of curing meats. George F. Doran, Omaha, Neb.

1,212,656. Pure-culture apparatus for yeast, mucorini, molds, bacilli, etc. Jean H. P. Magne, Mexico, Mexico.

1,212,722. Food product. Russell Wiles, Riverside, Ill.

1,212,900. Method of cooling and treating bread. Winfield M. Campbell, Kansas City, Mo.

1,213,210. Mineral water for use in the manufacture of leavened bread. Henry A. Kohman, Pittsburgh, Pa., Charles Hoffman, New York, N. Y., and Truman M. Godfrey, Pittsburgh, Pa.

1,213,245. Cereal-machine. David C. Parks, Kimmswick, Mo.

1,213,357. Composition for leavening dough. Abel M. Hamblet, Winchester, Mass.

1,213,545. Method of extracting and modifying proteins or albuminous matter (from yeast). Charles C. Ringler and John Beerhalter, Duluth, Minn., assignors of thirty-three and one-third one-hundredths to Fitger Brewing Co., same place.

1,213,627. Process for the manufacture of whole-grain bread. Paul Gross, Charlottenburg, Germany.

1,213,854. Method of making food compositions. John C. Fleming, Boston, Mass.

1,214,134. Process of preparing and preserving fruit-juices. Harry F. Cheney, Los Angeles, Cal.

1,214,160. Maltose and process of making the same. Fred J. Heming, Chicago, Ill., assignor to Crown Maltose Co., same place.

1,214,218. Food and process of preparing the same. Michael Quinlan. Hoboken, N. J.

1,214,234. Fruit-drier. Lee B. Skinner, Dunedin, Fla., assignor to L. B. Skinner Mfg. Co., same place.

1,214,239. Drying-machine for alimentary pastes. August Tegoli, Santa Rosa, Cal., assignor to Tegoli Drying Apparatus Mfg. Co., Ltd.

1,214,302. Device for proofing dough. Malcolm A. Hamilton, Waltham, Mass.

1,214,392. Art of cooking. Charles B. Trescott, Chicago. Ill., assignor to Morris & Co., same place.

1,214,393. Low-temperature cooking apparatus. Charles B. Trescott, Chicago, Ill., assignor to Morris & Co., same place.

1,214,465. Machine and process for pulling candy. John M. Howarth Wausau, Wis.

1,214,518. Process of preparing beverages. George Defren, Newton, Mass.

1,214,526. Bleaching grain. Wynn E. Ellis, Chicago, Ill.

1,214,585. Dough-mixing machine. Mike J. Podzeamski, Milwaukee, Wis.

1,214,598. Pineapple product. Samuel E. Shaffner, St. Louis, Mo.

1,214,627. Art of cooking hams. Joseph L. Wild, Tacoma, Wash.

1,214,720. Device for separating the whites and yolks of eggs. August Sobeck, Chicago, Ill.

1,214,726. Baking-powder. Mooshegh Vaygouny, Berkeley, Cal., assignor to Royal Baking Powder Co.

1,214,730. Extract having the flavor and aroma of malt and process of producing the same. Max Wallerstein and Leo Wallerstein, New York, N. Y.

1,214,821. Machine for grading fruit. Henry E. Peterson, Seattle, Wash.

1,214,875. Aromatizing dry coffee extract. Knut Aslund and Teofron Boberg, London, England.

1,215,024. Automatic cream-machine. John T. Hohberger, Chicago, Ill.

1,215,254. Art of preserving. Newton J. Darden, Memphis. Tenn.

1,215,305. Coating-machine. George F. Dickson, Chicago, Ill., assignor to Confectioners & Bakers Supply Co., same place.

1,215,363. Food product. William B. Gere, Syracuse, N. Y., assignor to Merrill-Soule Co., same place.

1,215,556. Machine for forming and baking hollow pastry forms. Edward H. Lanier and Frank K. Driesbach, Cincinnati, Ohio.

1,215,563. Corn-cutting machine. John C. McIntyre, Hoopeston, Ill., assignor to Sprague Canning Machinery Co., Chicago, Ill.

1,215,596. Fruit-washer. Otis B. Westcott, Columbus, Ohio, assignor to Jeffrey Mfg. Co., same place.

1,215,597. Stock food and process of producing the same. Otis B. Wescott, Columbus, Ohio, assignor to Jeffrey Mfg. Co., same place.

1,215,829. Apparatus for use in baking wafers and the like. Hugh W. Mackenzie, Leeds, England.

1,216,052. Process of making artificial cream. Herman C. Beckman and George E. Dyck, Chicago, Ill.

1,216,230. Feeding device for cake-coating machines. Pembroke D. Harton, Philadelphia, Pa.

1,216,260. Vacuum-box for fruit-canning. Lewis E. Arnold, Honolulu, Hawaii.

1,216,274. Pastry-making machine. Frederick A. Bruckman, Portland, Oreg.

1,216,275. Pastry-making machine. Frederick A. Bruckman, Portland, Oreg.

1,216,292. Trimming mechanism for pastry-making machine. Albert E. Dietrich, Washington, D. C., assignor to Frederick A. Bruckman, Portland, Oreg.

1,216,442. Fruit-drier. Bertha R. Haley, Wellston, Okla.

1,216,512. Dough-molding machine. Frank Streich, Joliet, Ill., assignor to The Union Wrapping Machine Co., same place.

1,216,554. Process of granulating and drying sugar. Godfrey Engel, Brooklyn, N. Y.

1,216,555. Apparatus for granulating and drying sugar. Godfrey Engel, Brooklyn, N. Y.

1,216,629. Screen for fruit-grading machines. Damon R. Throop, Davis, Cal.

1,216,671. Process for treating coffee. Francis R. Eden, Montclair, N. J.

1,216,675. Manufacture of margarin. Knud Ersley, Nijmegen, Netherlands.

1,216,674. Manufacture of margarin. Knud Ersley, Nijmegen, Netherlands.

1,216,703. Baker's peel. George J. Kraushaar, Cleveland, Ohio.

1,216,936. Confectionery machine. Emil J. Brach, Chicago, Ill.

1,217,082. Dough-mixing machine. Joseph P. Bachman, Newark, N. J.

Book Reviews

THE ENCYCLOPEDIA OF FOODS AND BEVERAGES. —Compiled and published by Artemas Ward, 50 Union Square, New York, N. Y., formerly editor of *The National Grocer*. 748 pp. of which 80 are in color. $10.00.

This is a most valuable book and should be in the hands of every one interested in the handling and sale of food products. After a careful examination of the book, one feels that perhaps as fair an analysis of it as is possible to make is given by the author in his Introduction, which is accordingly quoted verbatim:

"This Encyclopedia attempts to give some information on every article of food and drink, and also touches on many other interesting items handled by general storekeepers. The first aim is so extensive as to approach the impossible—and to describe all the varied goods of a general stock would be impracticable—but its pages treat on more than twelve hundred subjects. The first item in the text, *Abalone,* tells of a shellfish on the Pacific Coast now growing in favor—the last line lists *Zwetschenwasser,* a German liqueur. *Gunpowder, Nails, Rope, Shot* and other articles are given space, and a few points of legal or commercial import are briefly considered—as, *Trade-marks, Partnerships, Good-will, Power of Attorney,* and, at greater length, *Window Dressing,* and the origin of trade, under *Grocer.*

"The number of new fruits which during the last few years have found their way into our markets; the large, and constantly increasing, variety of foods and food delicacies, both domestic and imported, now offered for popular consumption, and the noteworthy growth of public interest in, and knowledge of, food values, make it essential that the modern grocer keep himself thoroughly informed and up-to-date. It is this service which the Encyclopedia is designed to render. Where reference is made to seasons, the character of the general demand, etc., it must be borne in mind that the book is published in the northeastern part of the United States and that therefore it may not in such particulars accurately report conditions on the Pacific Coast, the Gulf of Mexico or abroad.

"The grocer who does not think better of his calling in life as he glances over this book, is not worthy of it. Forest and Ocean, Land and Sea, the Animal and Vegetable Kingdoms—the earth and its fullness—are all tributary to his trade. *Vinegar* may be a trifle, but he shall see trainloads of tank-cars carrying it to factories. Under *Wines* he will find twenty pages of helpful information, including a catalog of types and varieties embracing nine hundred and sixty-eight items and more complete than any hitherto published.

"There are eighty full page plates in color, and four hundred and forty-nine illustrations in all. Twelve pages on *Cheese* contain descriptions of forty-eight varieties. Twenty on *Coffee* include a color-page showing twelve varieties of leading beans, so natural that they might be mistaken for real samples. Seven pages on *Oysters* are illustrated by a color-page and three full-page, and several smaller, half-tone plates. One shows the oyster in its various sizes, from the "seed" to a seven-year-old "giant," while others furnish views of planting and gathering in the United States and France. *Mineral Waters* gives thirty-nine different Springs, their locations and their specific qualities. *Tea,* richly illustrated, fills sixteen and a half pages, and *Rice* is shown in cultivation and gathering in many lands.

"If the dealer wishes to add fresh meats to his business he will find assistance in the large space accorded to *Beef, Mutton, Veal* and *Pork,* showing by colored plates and plain diagrams all the principal cuts. And his troubles are met in several directions, from *Awnings* to the *Ants* and *Cockroaches,* which annoy him.

"Many extraordinary subjects are touched upon. *Kangaroo Tails,* as a new meat supply, is immediately followed by *Kanten,* a Japanese isinglass, and *Kosher* treats of Jewish food restrictions important to those who have Hebrew customers. *Bacteria, Microbes* and *Yeast* tell in plain terms the latest facts of modern scientific discovery in relation to foods, their flavor, digestion, development and decay, while *Food Values* devotes six and a half pages to that important topic. *Mushrooms,* six pages and illustrations of fourteen varieties, is covered thoroughly.

"Every dealer should be interested in the liberal articles on *Cold Storage, Adulteration, Cookery, Preservation* and such subjects as *Fermentation* and *Distillation,* and how to defend himself against *Mold* and *Maggots.*

"The Appendix, of thirty-nine pages, contains a list of five hundred and nineteen words used to describe foods, drinks, etc., with their equivalents in French, German, Italian and Swedish, which should prove valuable to dealers born in those countries—who, even when well acquainted with English, find many a puzzling question put to them over the counter—and should greatly aid dealers born in English-speaking lands whose trade lies with foreign-born customers. This dictionary is carefully repeated in each language as 'French-English,' 'German-English,' 'Italian-English' and 'Swedish-English.' As the majority do not use more than four hundred words from the cradle to the grave, these vocabularies of over five hundred words in one line of business must be very complete.

"The Appendix contains, next, a list of two hundred and fifty-five of the most common *Culinary Terms,* which explains how the well-known staples sold by the grocer at such low prices masquerade under French names to justify an enormous advance in price when they appear on menus or bills of fare.

"Valuable tables of *Weights and Measures* are also included."

PRINCIPLES OF COOKING.—By Emma Conley, State Inspector of Domestic Science for Wisconsin, formerly Director of Domestic Science State Normal School, Oshkosh, Wis. American Book Company, New York, N. Y. 206 pp. $0.52.

In this rather modest textbook no attempt was made to dig very deeply into the food industry, the always interesting subject of the preservation of food being confined to a page or two on sterilization by heat. That the author believes what her grandmother told her about baking powder is evidenced by the statement that "the sale of alum powder is prohibited in some states because of the harmful effect of alum upon the human system." The book is well illustrated, largely by means of Dr. C. F. Langworthy's graphic "composition of food material" charts.

MICROBIOLOGY (Second Edition).—Edited by Charles E. Marshall, Professor of Microbiology and Director of Graduate School, Massachusetts Agricultural College. P. Blakiston's Son & Company, Philadelphia, Pa. 900 pp. $3.00.

While this is a textbook, it is the sort of textbook that the lay reader finds exceptionally good reading. The book consists of a number of contributions, each one coming from an authority in the division he treats, compiled into a homogeneous unit by its editor. The list of contributors is so extensive as to preclude the mentioning of their names, but many, if not all, of them are well known to the food industry. Of the eight divisions, several, such as *Microbiology of Milk and Milk Products* and *Microbiology of Special Industries,* are of direct interest to many of us, although the more general topics are, or should be, quite as carefully read for the very good reason that they cover the underlying laws of the animate microscopic world.

RYZON BAKING BOOK.—By Marion Harris Neil, M. C. A., formerly Cookery Editor of the *Ladies' Home Journal.* General Chemical Company, New York, N. Y., 80 pp. $1.00.

An examination of this most attractively gotten up Baking Book brings home vividly the fact that not only is Ryzon a scientific product coming from a scientific house, but even the methods used to promote its sale are scientific to the extent that the recipes recommended for use with Ryzon Baking Powder are themselves the result of a competitive test among thousands of housekeepers—8,379 recipes having been submitted. The Ryzon Baking Book consists in large measure of these prize recipes. It is excellently illustrated in color and well bound in boards.

DIGESTIBILITY OF SOME VEGETABLE FATS.—By C. F. Langworthy, Chief, and A. D. Holmes, Scientific Assistant, Office of Home Economics, U. S. Department of Agriculture, Bulletin No. 505.

This study of the relative digestibility of a number of edible oils is treated in the manner one has become accustomed to expect of these authors. Their conclusions, which are entirely inductive and based upon scientific data, are to the effect that with due allowance for metabolic products the digestibility of the oils investigated, expressed in decimal fractions of complete absorption, are as follows: Olive oil, 97.8; cottonseed oil, 97.8; peanut oil, 98.3; coconut oil, 97.9; sesame oil, 98; and cocoa butter, 94.9.

Staff Correspondence

Washington, D. C.

Congress is spending the last two weeks of the session in a feverish but unsuccessful hunt for the cause of the recent rapid advance in food prices throughout the country. Both the Senate and the House devoted many precious hours to a discussion of the food situation. And there were as many reasons advanced for the increase in prices as there were senators and representatives who discussed the situation.

The discussion was started early in February when President Wilson addressed a letter to the chairman of the Federal Trade Commission urging the commission and the Department of Agriculture to co-operate in making an investigation of the food situation throughout the country. The President's letter was written after the Department of Justice had virtually confessed its inability to find any evidences of criminal conspiracy in connection with the increasing cost of food. Some time after Mr. Wilson wrote the commission, the chairman of the trade commission, Mr. W. J. Harris, appeared before the House appropriations committee and stated that the investigation would cover a period of from eight to sixteen months and would necessitate an outlay of $400,000. The committee, in reporting the sundry civil appropriation bill to the House, ignored the President's request for an investigation and the trade commission's estimate for an appropriation.

On the day the measure was reported, there were food riots in New York, Philadelphia and other cities. Representative Borland of Missouri, who has been earnestly endeavoring to have the Chicago packers investigated by the trade commission, promptly offered an amendment to the sundry civil bill appropriating the $400,000 the trade commission considered necessary for the investigation ordered by the President. Chairman Fitzgerald fought this amendment bitterly. He compelled its revision several times, but finally it was held to be in order and the House by a narrow vote adopted it.

The debate on the Borland amendment was most enlightening, so far as it revealed the processes of the congressional mind. Representatives from the large cities contended that the high cost of living was due to a conspiracy to boost prices. They wanted price regulation, an embargo, prosecution by the department of justice, or a straight-away appropriation to feed the poor. Those with Irish or German constituencies argued that the war was responsible and insisted upon an embargo. Representative London, the New York Socialist, insisted that the government should create a food-regulating commission and deal out food to the poor at a reasonable price. Those who represented rural constituencies defended the farmers, whom they admitted to be holding up foodstuffs for still higher prices.

Those who represented stock-growing districts denounced the Chicago packers and declared they were guilty of boosting the price of meat and lowering the price paid for cattle, swine and sheep. Representative Stephens of Nebraska said the farmers of the West would quit raising cattle before they would continue to sell only to markets controlled by the packers.

No one on the floor raised his voice in defense of the packers, yet the fact is that on the day President Wilson's letter requesting an investigation by the trade commission was made public, Louis F. Swift, president of Swift and Co.; Thomas E. Wilson, president of Wilson & Co., and other prominent packers wired the trade commission that their books were open to inspection and that their employes were at the service of the commission in making the investigation. Attorneys for the packers came to Washington and conferred with the commission and offered to do all in their power to facilitate the investigation.

Over in the Senate the debate took a different trend. Senator Borah and others, while in favor of an economic investigation of the food situation, contended that the government should appropriate money to feed the poor who were starving while the investigation was going on. Senator Borah offered a bill appropriating $6,000,000 for this purpose. Also, in the Senate a practical measure of food relief was offered in the nature of the Underwood Amendment to the revenue bill fixing the tax on oleomargarine, colored and uncolored, at 2 cents a pound. Heretofore a tax of 10 cents has been levied on colored oleomargarine and of one-quarter of a cent per pound on uncolored. The Underwood Amendment drew the fire of both the dairy interests and the packers. The latter would gladly accept it but for the fact that numerous states prevent by law the sale of colored oleomargarine. The dairy interests opposed it because they believed it would increase the competition between butter and oleomargarine. The Senate finance committee approved the amendment, however, and the Senate debated it for days in anticipation of the vote which was to be taken on it on the evening of February 28.

During the debates in the Senate and the House, the attorney general was frequently criticised because the department of justice has not proceeded against "food gougers." Finally Mr. Gregory decided to answer these criticisms. He addressed to Senator Borah of Idaho a letter in which he declared there were a number of judges on the federal bench who would not enforce the Sherman anti-trust law. Those parts of Mr. Gregory's letter which concern the food industry are quoted verbatim:

Office of the Attorney General,
Washington, D. C., February 21, 1917.

Hon. William E. Borah,
United States Senate, Washington, D. C.

Dear Senator: I have read your remarks in the Senate on the enforcement of the law against combinations to increase prices, as reported in the Congressional Record of yesterday. I will try to answer the very reasonable inquiries which were in your mind.

To begin with, however, I will ask you to bear in mind that there are two broad limitations upon the power of this department in the field in question:

First, Increases in prices brought about, not by agreement, conspiracy, or monopoly, but by a common selfish impulse of traders to take advantage of the extraordinary condition of the times, are not punishable under any existing Federal law, no matter how completely lacking in economic justification, no matter how extortionate.

Second, Sales of commodities by retailers to consumers in the various cities and communities generally fall outside the field of interstate commerce and therefore outside the jurisdiction of the Federal Government.

Within these limitations the Department of Justice has brought to bear its full energy. Immediately after the outbreak of the European war, in August, 1914, when the first marked increases took place, the Attorney General instructed the various United States district attorneys and the various agents of the Bureau of Investigation throughout the country to make inquiry in their respective communities for the purpose of ascertaining whether any such increases were due to agreements or conspiracies in restraint of interstate trade. These instructions have been repeated from time to time since.

Except in two or three cases no evidence has been discovered up to this time to justify indictments under the Federal statutes. The inquiries are still proceeding, however. Indeed, I have no doubt that the beginning of an investigation by the grand jury in the southern district of New York was the controlling factor in bringing some of the leading manufacturers of news print paper to the point where they were willing to agree that the price be arbitrated by the Federal Trade Commission.

* * *

Another condition which has been brought out in the course of the department's investigation is the existence of associations in almost every branch of trade. These associations perform some very useful functions. They also in many instances make their influence felt in maintaining prices, in such a subtle and intangible way, however, that it is impossible to convict them of violating the law. It hardly seems desirable to prohibit such associations altogether, but the question arises, in view of their undoubted influence in maintaining prices, whether traders, as a condition of being permitted to form such associations, should not be required to assume the burden of establishing the reasonableness of their prices when challenged.

Another suggestion which has occurred to those of us who have been dealing with the problem is whether the charging of extortionate prices in interstate commerce should not be made, per se, an offense, although not the result of either conspiracy or monopoly.

Still another suggestion is whether the great produce exchanges and stock yards of the country, which constitute the primary market places for our foodstuffs, should not be under much closer governmental scrutiny and regulation than now prevails, to the end, amongst others, of insuring against the employment of their facilities in transactions which create false impressions of the conditions of supply and demand and artificially affect prices. Without stopping now to inquire how far the Federal Government could directly regulate such exchanges, it could doubtless accomplish the same objects by prescribing

Staff Correspondence

the conditions upon which they should be permitted to use the mails, the telegraph and other instrumentalities of interstate communication in carrying on their business.

Finally, it appears desirable, and I have already suggested, that the warehouses of the country should be required to make the Department of Agriculture, under oath, periodical reports of the quantities of produce in storage. I am advised that a bill to this end has heretofore been introduced either in the House or the Senate, and perhaps in both Houses.

In view of the fact that the President has directed the Department of Agriculture and the Federal Trade Commission to conduct an inquiry into this whole subject with a view to proposing remedies, I do not feel that the time is now ripe for me to make any more definite suggestions than those above.

There is one final thought, senator, which I should like to have you and others have in mind in assessing the work of this department in the enforcement of the antitrust laws. The executive department alone can not enforce those laws. It must have the sympathetic co-operation of the Federal courts. I regret to say that a number of the Federal judges always have been and are still apparently reluctant to enforce the Sherman act. I do not mean to charge that they attempt deliberately to obstruct the will of Congress. I assume that their views of public policy do not agree with those of Congress as expressed in the Sherman act and that unconsciously they permit their own views as to what the law should be to affect their construction of the law as it is written. * * *

I did not intend to write at such great length, but the reasonableness and moderation of your remarks, contrasting so strongly with the heedless and unjust criticism so often directed against those charged with the enforcement of the law, led me to believe that a fairly full statement on the subject might not be unwelcome to you.

Very truly yours,
T. W. GREGORY, Attorney General.

Alabama.

The legislature will be asked at its next regular session to repeal a law, passed several years ago, which levied an exorbitant tax on oleomargarine. Emmet E. Jones, in charge of the department of Weights and Measures, claims that this will be one of the first laws to be repealed. The state legislature enacted the law shortly after Congress fixed a tax of ten cents per pound on oleomargarine. Now that Senator Underwood has introduced a bill to reduce this tax from ten cents to two cents pure food officials here have opened up a quiet campaign for the reduction in the senator's home state. In commenting on the Underwood amendment an Alabama paper says:

> "Oleomargarine is a substitute, a healthy substitute, for butter. A few people really like it better than they do butter, but the mass of the people naturally prefer first-class butter to oleomargarine. But oleomargarine is the friend of the economical man; it is the table ornament of the thrifty. It would be, of course, very unjustifiable deceit to sell oleomargarine for butter, as it was sold many years ago. That issue now is very properly dead, as the federal law requires that the substitute be plainly labeled as oleomargarine. To the reasonable man that should be enough specific restriction of the sale of the butter substitute, provided it paid its just proportion of taxes."

An extremely strict pure food ordinance has been adopted by the city council of Anniston. It is aimed at persons who water milk, grocerymen who put sand in sugar and butchers who sell meat that is not fresh.

Dairymen in Montgomery have asked the city commissioners to co-operate in an effort to drive out of business all who disregard sanitary conditions of milk depots, stables and milking places. At a recent meeting of the commissioners a committee of dairymen appeared and told the commissioners that the city ordinance was being openly violated. They asked for an additional inspector and for more stringent ordinances to deal with the violators. Many dairymen in Montgomery sell milk from bottles and it is claimed these bottles are not properly cleaned. The statement was made that the dairymen will organize in an effort to put the business on a higher basis.

Idaho.

The state board of health has been reorganized with the election of Dr. W. R. Hamilton of Weiser, president. For the purpose of bringing the board and the pure food department under one head, there is now pending before the present legislature a measure to that effect. This bill makes the pure food commissioner a subordinate in the consolidated department, but with the same duties to perform.

Food Commissioner White in outlining the future work of his department expects to give a great deal of his attention to the investigation of adulterated drugs and the improvement of dairy products, hoping, by his investigation to improve conditions.

The Moody creamery and dairy bill, which passed the legislature and has been sent to the governor for his approval, will be of interest to all dairymen and creameries in the state, as it imposes certain restrictions as to the disposal of their products when there is contagious disease in the neighborhood. The bill stipulates that no milk or cream shall be dispensed from any house, store, shop, dairy or other place in which there has been a case of contagious or infectious disease until all danger of contagion has been removed and permission in writing has been obtained from the local health officer. The existence of smallpox, typhoid fever, diphtheria, scarlet fever, measles or other communicable disease on or in the immediate vicinity of the dairy farm shall be promptly reported to the county health officer and by him to the state board of health and the sale of milk shall be stopped until its resumption is authorized as provided by law.

Indiana.

Several bills increasing the work of the food, drug and weights and measures department are pending before the legislature in its biennial session. Commissioner Barnard will ask for no amendment to the pure food and drug laws.

The manufacturers of dairy products have been interested in the creation of a State Dairy Board to regulate the production and manufacture of milk and dairy products. Under the bill the State Food and Drug Commissioner is made chairman of the board and State Dairy Commissioner. A strong opposition developed against the bill, members of the State Dairymen's Association taking the position that it would operate against the dairy farmer, rather than in his favor. After several weeks of active work by supporters and opponents the bill was finally killed.

The Weights and Measures Law has been materially strengthened by the passage of a law which provides that all fruits, vegetables, grain, seeds, nuts, groceries and such commodities as ice, coal, lime, salt, feed, etc., shall be sold by avoirdupois weight or numerical count. In effect this law does away with the measure as a standard. Fresh vegetables and fresh berries are exempt from the provisions of the act. Apples and cranberries which are sold in the U. S. standard apple and cranberry barrel are also exempted.

Another weights and measures bill which has passed the House without a dissenting vote and which is now pending in the Senate, fixes the weight of a bushel of onions, apples, peaches and other foodstuffs for which no bushel weight has heretofore been fixed.

The high cost of living, perhaps, accounts for the large number of samples of adulterated foodstuffs which are now being found. For many years prepared meats have been free from fraud. Recently of 190 samples of adulterated sausage 62 contained starch and 12 were preserved with sulphites. In no case were the samples labeled "sausage with cereal added," as is required by law. A number of samples contained as much as 8% of starch and nearly 25% of added water, an amount which would tend to indicate that the "cereal" or "binder" is not used for the purpose of making a better sausage.

The work of the Water Laboratory is usually light during the winter months, but this year unusual conditions in several cities have imperiled the health of users of the water supply, and greatly stimulated the efforts of the water laboratory in its supervision of public supplies. At Fort Wayne a deep well supply, which previously has been of excellent character, suddenly developed a bad physical appearance which chemical and bacteriological analysis proved to be due to gross pollution with unfiltered water. On investigation it was found that a leak had developed in a suction line or

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is bread you can eat with a sense of safety because it is pure, clean and the standard of quality wherever sold.

It is pure, because only the highest grade bread making materials which money can buy are used in making it and the process under which it is made is the most advanced and scientific known to the baking industry.

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Hence, when you buy it you are guaranteed these three food manufacturing virtues—Quality, Purity and Cleanliness.

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Staff Correspondence

some branch or connection. Fortunately the city was able to continue its water service with the supply drawn from two other pumping stations, and no illness has been reported. Special advice has been given the city of Kendallville, where the supply which is drawn from deep wells was found to be inadequate in times of heavy consumption.

During the month 84 samples of water were submitted for sanitary analysis. Fifty-five samples were from private supplies, 24 of which were found to be satisfactory, and 31 unfit for drinking and domestic purposes. Of the 29 samples from 15 public supplies, 10 were pronounced unsatisfactory for public use. These figures are not reassuring. When more than sixty per cent of private wells are unfit for use and nearly thirty percent of public waters unpotable, the necessity for extreme vigilance in the protection of waters is apparent. Commissioner Barnard expresses the opinion that no duty of food officials is as important today as the regulation of water supplies. As he recently said in an address before the Indiana Sanitary and Water Supply Association, "No phase of food control has been so neglected as the regulation of the water supply. Every food law holds water to be a food. The Federal government has prosecuted many cases involving the sale of condemned water, but food officials have been negligent in their study of polluted waters and have failed to exercise their duty in prosecuting the officials of water companies for the sale of impure water. It is a crime to sell adulterated vinegar by the quart. It is a far greater crime to pump water through service pipes which will bring disease to the user."

During the month of January 150 samples of food were analyzed. Of this number 116 were found to be legal and 34 were listed as illegal. Forty-six samples of country butter collected in grocery stores were examined for moisture content. But three samples contained more than the recognized 16% of moisture. The food and drug inspectors made 1,153 visits to food establishments in forty-two cities and towns. Four of the places visited were listed as excellent; 661 were listed as good; 379 fair, 106 poor, and 3 bad. As usual the dairies were in the most unsanitary condition. Of 16 dairies visited but one was listed good, 6 were fair, 7 were poor, and 2 bad. Meat markets, grocery stores and drug stores were in satisfactory condition. Hotels, restaurants, bakeshops and confectioneries showed no improvement over earlier visits. In general their condition is satisfactory. Thirty-one condemnation notices were issued against the proprietors of unsanitary establishments.

In accordance with his constructive policy Commissioner Barnard has sent a letter to Indiana canners ending with the following good advice:

"Make your factories sanitary and your equipment adequate. See that your employees are cleanly and healthy and that their work is done with intelligence and real interest. Our inspectors and chemists are at your command."

Massachusetts.

An incipient bread riot in Boston a few days ago was the first popular demonstration against the high prices which are charged here for the very necessities of life. Potatoes can be purchased now only at a cost of $1.10 per peck—and the price is still soaring. The publication of the statement that, on a certain day recently, the price of potatoes in Boston was twice as high as the price charged in London on the same day, did not tend to allay the feeling of popular discontent. The knowledge, also, that every week steamers left Boston for Cuba with from 40,000 to 50,000 bushels of potatoes, while local dealers asserted that they could not get potatoes at any price, may have had something to do with the riotous actions which were suppressed only after energetic action by the police. The people of Boston have watched countless cargoes of food supplies leave this port for European consumption and have found the prices which they have to pay for the same food doubling and quadrupling and now they are demanding that some consideration be paid to them. Long ago the poorer classes gave up all thought of meat and, of necessity, became vegetarians. Now they cannot get vegetables. Eggs and butter have been beyond reach for months. Milk can be had for six cents per pint but the announcement is made that that price will be increased in the near future.

The report of the Commission on the Cost of Living recommends that we eat more fish and drink more milk, and boycott meat and vegetables. The suggestion as regards fish is appropriate and undoubtedly would relieve the situation somewhat. More fish would and could be brought to this port if there was a sure market for fresh fish. Heretofore thousands of pounds have been taken to Gloucester and other ports for drying and salting. While the consumption of fresh fish has increased during the last few years, it still amounts each week, on the average, to less than one meal out of twenty-one. Less than 5 per cent of the average family outlay for food in New England is spent on this important article of diet, while meat runs from 30 to 40 per cent. The report says: "The State has gone into partnership in the fish industry. It has constructed a fish pier foundation on Commonwealth lands at South Boston, and leased it to the Boston Fish Market Corporation, which has erected buildings thereon at a cost of about $2,000,000. The rental paid to the State fails to reimburse it by more than $16,000 a year, which amounts to a subsidy to encourage the fish industry."

The problem of supplying both fish and milk would be partially solved if there were better facilities for handling all kinds of freight in Boston. The Commission urges the public to drink more milk but does not point out how the additional supply of that food can be secured. The milk contractors are worried now over the problem of securing a supply to meet the present demands. Farmers have been cutting down their herds of cows and have turned their attention to more remunerative products. Those herds cannot be replaced instanter so the recommendation of the Commission to drink more milk is likely to result in creating greater confusion rather than solving the problem of living.

Minnesota.

The following resolutions were adopted unanimously by the Board of Directors of the Saint Paul Association on Thursday, February 15, 1917:

WHEREAS, The Dairy and Food Commission of the State of Minnesota is entrusted with the duty of conserving the health of our people, insofar as this depends upon the securing of pure dairy products and pure foods; and

WHEREAS, The work of inspecting dairy and food products is a scientific and technical task requiring specialized skill and training of no mean degree; and

WHEREAS, In all positions requiring such specialized skill and training the experience of a long tenure of office is essential; and further

WHEREAS, It is understood that plans have been perfected as a result of the past experience of the Dairy and Food Commission which, if carried out, will greatly improve the dairy inspection of Ramsey county, and consequently conserve the health of our people; therefore be it

RESOLVED, That the Saint Paul Association, composed of nearly 5,000 members, representing 150 lines of business and professional activity, does hereby petition his excellency, the governor of Minnesota, in making his appointments for positions in the Dairy and Food Commission to take such steps as will insure the complete development of this program of obtaining the scientific and efficient inspection of dairy and food products; and be it further

RESOLVED, That copies of these resolutions be transmitted to his excellency, the governor of Minnesota, to the Dairy and Food Commission and to the daily newspapers of Saint Paul.

Nebraska.

Governor-elect Keith Neville has recommended the consolidation of the state hotel commission with the office of food commissioner and a bill for that purpose will probably be passed by the legislature. The weights and measures law, the pure seed and stock food laws are now enforced by the food commissioner. The present policy is to avoid duplication of visits of inspectors to cities and towns by having the same set of employes inspect food, dairies, drugs, and oils. The legislature proposes to place the departments on a salary and appropriation rather than a fee basis.

H. R. 597, defining more clearly the standard of purity of seeds, is pending in the house of representatives. H. R. 681, also pending, provides that any preparation containing one-half of one per cent of alcohol shall be branded as to

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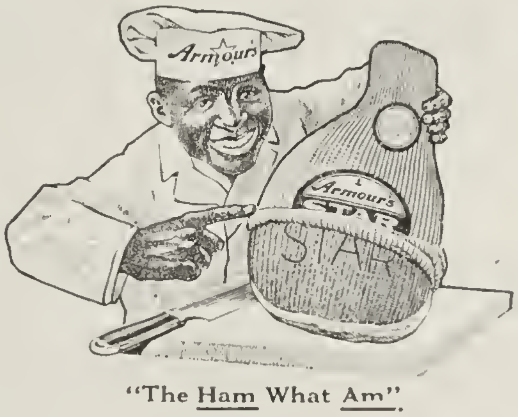

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Staff Correspondence

percentage. Another bill prohibits the advertising of preparations containing alcohol.

Food Commissioner Murschel, cooperating with the national food commissioner, has seized two shipments of oysters from Baltimore and found one to be short weight. The national department will use the evidence furnished for a prosecution at Baltimore.

Sixty-four creameries have secured permits from the food commissioner. The total amount of butter manufactured by all creameries in this state for the year ending June, 1916, was 45,198,880 pounds, an increase of over 4,000,000 pounds in comparison with previous years. The Beatrice creamery at Lincoln manufactured 7,300,000 pounds and the Fairmont creamery at Omaha 8,176,000 pounds.

During the last biennium the food commissioner reported an increase of more than 100% over the previous biennium in the number of inspections of all kinds, the total being 57,457.

New York.

One of the interesting effects of the high cost of living in this city has been a surprising growth in the number and extent of co-operative buying combinations of consumers. For the most part, they appear to be developing in shop organizations and commonly have the backing of large employing companies, who see in a practical policy of fostering joint buying among their employes, one way to advance wages without actually adding to the pay rolls. For instance, probably one of the most notable successes is that of the Interborough Rapid Transit Co., which has had three stores in operation, in locations where the company can furnish free rent, for over two years, and with eminent success for both the enterprise and the employes. The company gives free light, heat and transportation and over 21,000 employes and their immediate families are enjoying the benefits of the scheme. The Interborough's stores have 86 employes of their own. Last year's sales amounted to $350,000. A store bakery turns out 3,000 loaves for the Saturday trade and a fifteen-ounce loaf is sold for 4 cents. An ice house is also part of the stores' equipment. All last fall, the stores boast, they sold No. 3 tomatoes at 10 cents a tin.

Another marketing bubble has been pricked—the open "city" markets which Borough President Marks set up under the big bridges and other places to permit the farmers and the consumers to circumvent the wicked middlemen. In their day they were a never-ending wonder—according to the flare-heads in the papers—but from the trade standpoint it was manifest that they were destined to fail. And now no less an authority than City Weight and Measure Commissioner Hartigan, secretary of the committee that set up the markets, admits that the fate which was predicted has befallen the markets. In an interview last week he said:

> To these markets in the beginning, perhaps because of the extensive publicity given them, farmers and producers came in from nearby producing points.
>
> In due course the novelty of going a great distance, either on foot, by car or automobile, and forsaking the neighborhood retailer, wore off. At the same time the producers fell away.
>
> The thing developed into markets of retailers who bought from all sources, producers, commission merchants and others. Today to some degree the markets are still in existence, but they are not doing the same big business as in the beginning.
>
> One of the troubles was that the merchants could not afford to pay the stall rentals with the prices of things constantly rising. Perhaps a more important reason behind the failure of the markets is the habitual custom of the people of this city to patronize the neighborhood grocer, butcher, baker and candlestick maker.

Food questions have been pre-eminent in the newspapers for many weeks, but during the past few days the situation has actually produced food riots in the poorer sections of the city. Women paraded the streets, overturning pushcart peddlers' stands and attacking small markets, and finally going to the City Hall, where they demanded that Mayor Mitchel and his official advisers do something. They also paid similar attention to Governor Whitman.

Careful inquiry by city investigators was made in three test sections of the city and it appears that the suffering is greatly exaggerated. The results of this inquiry indicate:

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First—That there is no condition of real starvation existing in these poorer sections of the city. The investigators of the department called on 1,676 families on Washington's Birthday, and actually interviewed 1,472 who were at home and willing to give information.

Second—That while there are a few families (22 out of 1,472) who are suffering from privation and are in immediate need, the proportion of such families is no greater than is found in the city in normal times.

Third—That a large majority of the poor (1,334 out of 1,472) are beginning to feel the effect of high prices, which appear to be rising out of proportion to wage or salary increase.

Fourth—Only a small number of the families (77 out of 1,472) in these sections of the city by skillful management are able to cope with the high cost of living without any deprivation or any undue inconvenience.

Meanwhile certain well-meaning but poorly informed people started a scheme for the city to buy a million dollars' worth of food, to be sold at cost to the poor. George W. Perkins bought by wire several million pounds of rice on the Pacific Coast. After the purchase was made Mr. Perkins discovered that rice on the coast won't feed hungry people on the East Side of New York. In fact, he found out what the immediate trouble was; that railroad congestion had caused a genuine shortage and until stuff could be brought through, he was as badly off as any of the business men. But the railway men did get busy—very busy—and started strenuous movements to clear the tracks and start food eastward. In about a week a surprising improvement had been noted and it is thought that food will be more plentiful from now on. Of course, the boycotters and the agitators and reformers claim the credit for the annihilation of the "Food Trust," but actually it is simply the old law of supply and demand again asserting itself, although with more than usual violence.

An interesting study as to merchandizing methods and the development of chain stores, is contributed by Sylvan L. Stix, who has just been elected president of the New York State Wholesale Grocers' Association. Mr. Stix is a long-distance thinker who sees in chain stores not mere foes to be overcome, but signs of the times, to be met with intelligent re-adjustment. He thinks they have a real efficiency which should be analyzed and he has analyzed them with the conclusion that other retailers must take a leaf from their book and do some evolving for themselves.

The experiment of selling horse-meat for food in this market has been a prodigious success and although there are still only three or four such markets—mostly in the poorer sections of the city—the repeat sales are such as to indicate that horse-meat, in steak and roasts, is quite acceptable. The Board of Health is endorsing the plan fully.

Ohio.

There is much opposition in the state legislature to the cold storage bill of Representative Smith of Cuyahoga county, and unless radical changes are made in it, there is but small chance of its passage. It provides that a license must be obtained from the state agricultural board before a cold storage warehouse may be operated. Upon receipt of the application the board must make an examination as to the sanitary condition of the warehouse. If found to be sanitary and properly equipped the license may be issued. A fee of $50 will be charged for the license, and a license is to be taken out for each separate warehouse. Anyone operating a warehouse must keep an accurate account of the receipts and withdrawals of food, which records shall be open to the state board at all times. A report must be filed with the board by the owner of the warehouse on or before the sixth day of January, April, July and October of each year, setting forth in itemized form the kind and quantities of food products held in cold storage. It shall be unlawful for any slaughtered animals, or parts thereof, to be placed in cold storage unless the entrails and other offensive parts have been removed. The board of agriculture shall inspect all stored foods. Food shall be inspected when deposited and the date of deposit shall be plainly stamped on it. There shall be displayed on each container or on the outside of the wrapper, in plain view of the purchaser, the words, "wholesome cold storage food." The periods that food may be kept in storage are as follows:

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whole carcasses of beef, or any parts thereof, four months; pork, six months; lamb, six months; veal, three months; dressed fowl, drawn, five months; dressed fowl, undrawn, ten months; eggs, light, seven months; butter, nine months, and fish, nine months.

After food is withdrawn from cold storage to be sold it shall not be returned to such storage. It may be transferred from one cold storage warehouse to another if the storage time limit is not exceeded. Nothing in the proposed law prohibits the shipping, consigning or transporting of fresh food in properly refrigerated cars within the state to points of destination, nor prohibits such food when received from being held in a cooling room for a period of 48 hours, nor the keeping of fresh food in ice boxes or refrigerators in retail stores while the same is being offered for sale. For violating the law a fine of $500 is provided for the first offense, and one of $1000 for the second and each subsequent offense, and in addition offenders may be imprisoned in the county jail for from 30 to 90 days.

Governor Cox has signed the law appropriating $200,000 for the erection of a coliseum building on the state fair grounds in Columbus. The National Dairy Association agreed to hold its annual convention in Columbus this year if the state would erect a suitable building, and to get this great attraction the state legislature passed, as an emergency measure, the bill of Senator Lloyd of Franklin county, providing the needed funds.

The new budget prepared by Governor Cox, among other innovations, provides that when cattle are officially slaughtered because of disease the owners shall be compensated by the state for their loss just as soon as appraisers of the board can determine the amount of the award. In the past the money has not been paid until after the legislature met and made the appropriation necessary to meet the claims. As a result owners often were compelled to wait nearly two years for their money.

A large Ohio milk distributing company and ice cream manufactory has received much commendation for offering bonuses above the contract prices as a premium for high grade milk and cleanly kept dairies. A standard is fixed for high scoring and those who comply with it get for their products prices much higher than is otherwise the case.

South Dakota.

The biennial session of the legislature ends its session March 2. Practically all food legislation this session has been confined to the dairy industry. The legislature has amended several statutes, giving to the state inspectors greater powers, reinforced with penalties, in the way of requiring sanitary dairy barns and stricter regulations as to cleanliness in handling the product, both in bottles and other small containers by the retail dairymen and in large cans in wholesale shipments of cream and milk.

The cream industry is growing in this state, one small station, Midland, in the heart of the old free range country, last year selling $50,000 worth of cream for shipment to central creameries, besides that sold for local use. Other stations did almost as well.

Potatoes are selling at different local points all the way from $2 to $3 per bushel, and are hard to secure at these prices. This price will stimulate an increased acreage the coming spring if sufficient seed can be secured.

The increased acreage of alfalfa and sweet clover is stimulating the honey industry in the western part of the state. A number of colonies of bees have been established and are proving profitable investments.

Tennessee.

During January the department devoted 110 days to inspection work. This is an average of 4.2 men in the field for each of the 26 working days. The inspectors visited 170 towns distributed over 45 counties, inspecting 1175 food-handling establishments, 55 hotels and 45 soft-drink stands. Of the total of 1175 food-handling establishments visited,

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those considered in a satisfactory condition amounted to 821. There were 369 sanitary orders issued to establishments deemed to be not in good condition. In the course of this inspection 11 lots of food unfit for use were found and condemned. Of the 735 pounds so condemned 410 pounds were sorghum molasses, 205 pounds were canned vegetables, and 85 pounds were fresh meats. In connection with weights and measures 27 establishments were visited in which 60 weighing devices were found to be satisfactory and 6 were condemned. Of the four measuring devices examined, all were condemned.

During the month the inspectors found 4,395 packages of food, the labels of which failed to show the net contents. Of the total of 135 samples analyzed by the food and drugs laboratory, 59 were of food, 32 of drugs and 44 were examined in connection with the soft-drink stand law. Of the 59 food samples, 54 were declared illegal, largely on the grounds of marking.

Virginia.

Practically every herd of breeding and dairy cows in the State has now been subjected to the tuberculin test. Commissioner Purcell has announced that in conformity with a requirement of the local health department every herd of cattle in Norfolk County has been tested for tuberculosis. While there are yet scattered herds in various parts of the State which have not been given the tuberculin test, the owners of all herds which supply milk to communities have taken this step to safeguard consumers as well as the animals.

There is no State law in Virginia which requires dairymen to subject their cattle to the tuberculin test. All of the cities, however, have regulations regarding the sale of milk and the dairymen, finding it profitable to have tested herds, are having the test made by the Dairy and Food Division. Under a recent State law the Dairy Commissioner is authorized to test the herds on application. Owners have found that in addition to the sale of milk increasing from tested herds, the output is greater and the life of the cattle is prolonged. As an impetus to the dairymen to have their cattle given the tuberculin test, the State has stipulated that all animals re-acting under the test shall be surrendered to the authorities, the dairymen to receive $40 for each animal so surrendered, unless it is of pure breed or registered stock when $80 will be allowed. Heretofore when animals were tested by persons employed by the dairymen and the cattle were found diseased their loss was complete. In the case of re-acting pure bred cattle, in some instances, the Dairy and Food Commissioner allows them to be retained and segregated under such conditions as will not admit of the spread of the disease to other animals.

In each instance where the State undertakes to test herds the dairyman must agree that after the test is made he will not introduce into his herd any animal, without first knowing that the animal has passed a satisfactory tuberculin test, and before introducing any animal into his herd, the Dairy Commissioner must first be informed of his purpose. It is also agreed that the owners of herds will follow a schedule of sanitary measures indicated by the Dairy and Food Commissioner in order that the herd may be kept free from tuberculosis or to eradicate the disease from premises which have become contaminated.

After obtaining the approval of the United States Bureau of Animal Industry, Commissioner Purcell has notified all meat packers that in the future when potted meat products are shipped into Virginia, in addition to the information now shown on the packages, the following legend must also appear: "Made from carcass by-products." The notification states that the Dairy and Food Commissioner of this State will require that this additional legend must appear on the face of the label on the same kind of background, and be given equal prominence as the words, "Potted meat products," now appearing thereon. This ruling of the Virginia Commissioner is the result of negotiations which he has been carrying on for some time to have the packers mark

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Staff Correspondence

potted meat products in such a way that the purchasers will know what is contained in the package. Commissioner Purcell has permitted all potted meats now in the State to be sold, but all future shipments will be required to bear a new label as indicated.

Wisconsin.

The first big anti-trust action brought in the state of Wisconsin for the alleged purpose of checking the soaring price of a food product was started on Saturday, February 3, when Attorney General Walter C. Owen filed a suit in the circuit court for Dane county for the dissolution of the Wisconsin Pea Packers' Association. The suit demands forfeiture of the charter of the association on the grounds that the corporation was formed by the pea packers to control the output "and to fix the price of canned peas, and to afford a cloak or cover to such a conspiracy, and that the defendant is now serving that very purpose."

A state marketing bill now before the legislature provides for a marketing commissioner of one member whose duties shall "consist of the locating within the United States all food supplies and other products having a direct bearing on the high cost of living, necessary to supply the demands of the consumers of the State of Wisconsin." The annual salary of the market director is fixed at $6,000 a year. The measure carries an appropriation of $100,000.

The market director is empowered, among others, "to contract for or store such farm products or other products as in his judgment may be necessary to protect the consumers of the state against the manipulation of the food products by the dealers therein." The bill directs that the director shall maintain a bureau of correspondence for gathering information on all subjects relating to marketing and the distribution of Wisconsin products. The agricultural department and the state dairy and food department are required to assist in gathering information.

To standardize the size of a loaf of bread Senator George B. Skogmo recently offered a bill in the upper house of the legislature. The measure provides that the weight of a loaf of bread shall be sixteen ounces and that no bread shall be sold in the state that does not weigh a pound to the loaf. The state superintendent of weights and measures shall have power to enforce the law and violators shall be punished by a fine of not less than $25 nor more than $100.

A food measure has also been offered by Senator Skogmo relating to the sale of meat and butter and similar commodities. The bill provides that all meat products and butter shall be sold by weight and that all other commodities not in containers shall be sold by weight, measure or numerical count, provided, however, that vegetables may be sold by the head or bunch. The enforcement of the law is placed in the hands of a state superintendent of weights and measures. Violators of the law shall be punished by a fine of not less than $25 nor more than $100.

New Trees and Plants for America.

A wide variety of promising foreign plants are now being propagated and tested by the government in the plant introduction gardens maintained by the U. S. Department of Agriculture in Florida, California, Washington, and Maryland.

These gardens may be called the "Ellis Islands" of the plant immigration service. In them the plant immigrants are carefully studied in order to make sure that they carry with them no disease, and only those which are known to be desirable additions are permitted to make a home in this country. The plants which have successfully passed this scrutiny are distributed to the State experiment stations and to thousands of experimenters and breeders throughout the country.

At the present time, says an article by P. H. Dorsett in the 1916 Yearbook of the Department, much attention is being bestowed upon recent importations from China. Among these are the jujube. This, it is said, may well prove commercially profitable in California and the semiarid South

A M Chem.

Stiles on Meat **Fermentation**

THE AMERICAN FOOD JOURNAL

—with which was combined on St. Patrick's Day, 1917—

The American Food Manufacturer

VOLUME TWELVE
NUMBER FOUR

Chicago, April, 1917

$1.50 PER YEAR
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A Bake Shop in Salvador

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THE AMERICAN FOOD JOURNAL

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The American Food Manufacturer

There is no higher art than that which tends toward the improvement of human food.—*Henry Ward Beecher.*

Robert Gordon Gould, *Editor*

Vol. XII APRIL, 1917 No. 4

Water Purification.

Subscribers to this Journal are shortly to have the pleasure of reading a series of articles contributed by Dr. Harry Everett Barnard, Food Commissioner of Indiana, and descriptive of the various methods of purifying potable water. As at present planned, this series will consist of three articles to appear in the May, July and September issues, dealing respectively with slow sand and pressure filtration, chemical treatment, and electrical treatment and distillation. They will be authoritative, sufficiently full to be of real service to all who are interested in pure water and sufficiently concise to be entertaining reading.

Praise From Sir Hubert.

This being the time of year when the modest violet is to be seen timidly peeping from the sombre earth it is, possibly, in keeping with the season to quote from a letter recently received from a prominent food control official who possesses many of the characteristics of Sir Hubert—notably his keen discrimination.

> "I have just been carefully reading the March issue and I want to congratulate you on getting up a food journal after my own heart, one which we have never had before in this country. You seem to be holding the scales equally between those of us who are enforcers of the law and those who must conform to the law. Not only this, you are giving us a lot of valuable information which we are all glad to have, even those of us who have access to technical sources, which the average manufacturer has not. Particularly is this valuable to the hard-working administrator who must take a broad view of a subject and has not time to work out for himself even the larger technical aspects of much of his work. I hope you will continue to increase and that you will keep up the good work as you have begun it."

And what is more, he entered an order for a dozen subscriptions.

The American Food Manufacturer.

About a year ago a gentleman named Robert Reichman started the publication in New York City of a monthly periodical devoted to the interests of the manufacturer of commercial foods and styled *The American Food Manufacturer.* Some few months ago Mr. Reichman and his associates realized that the profession of magazine publishing is beset with many difficulties and temporarily suspended publication. As the cover design announces, *The American Food Manufacturer* has now been merged with this Journal. To those who subscribed for *The American Food Manufacturer* will be sent for the balance of their subscription period The American Food Journal. Editorially this Journal will endeavor to cover the particular field which *The American Food Manufacturer* was designed to fill. In addition to the *dietetic* and *legal* aspects of the food industry, we shall from this time forth have much to say in regard to the *economic* phases of that industry.

Food in War Time.

Wheat on the Chicago Board of Trade is selling for \$2 a bushel—the highest price since the Civil War. Despite unsatisfactory crop conditions this figure should not be regarded as a true index of this country's agricultural wealth. It has in it certain speculative aspects. The probability of war brings the question of the food supply very much to the fore. If we are to make intelligent use of our potential wealth something should be done to curb speculation in foodstuffs. Although we import considerable food it is largely due to custom. We could be self supporting in this regard if we so willed. Possibly the impending war will teach us many a wholesome lesson as to "bushels per acre," methods of distribution and, above all, nutritive values. There are many economists who believe that the Central Powers would long ago have been forced to surrender but for the fact that for about a generation they have regarded food values as a matter seriously to be considered. On another page of this issue is printed something concerning the Quartermasters' Reserve Corps, a department which is of especial interest to all readers of this JOURNAL and a department which is of paramount importance in time of actual warfare for, as Napoleon said, "an army travels on its belly."

Southern Officials to Organize.

There will be a meeting on April 16 at the Chisca Hotel in Memphis, Tennessee, of municipal and state food and drug control officials coming from Alabama, Kentucky, Mississippi, Louisiana, Arkansas, Texas, Oklahoma and Tennessee. The meeting has been called by Commissioner Eskew of Tennessee and is for the purpose of effecting a permanent organization of all food and drug officials of the south central states. The idea back of the contemplated organization is, according to Commissioner Eskew, that by co-operative effort and co-ordination of work all of its members as well as the public will profit. The food commissioners of the various states enumerated have expressed approval of the plan and have promised to attend the Memphis meeting. There will also be present Dr. C. L. Alsberg of the Bureau of Chemistry, Dr. J. S. Abbott, whose specialty is co-operation, and Dr. I. M. Tolman of the Central Inspection Division of the U. S. Department of Agriculture.

Substitution.

The very word "substitution" has to the average mind an unpleasant sound. It seems to connote inferiority, deceit and all manner of evil. It is used as ammunition by many business men when in the heat of a commercial campaign, and often used with deadly effect. All of which is both wrong and unfortunate. There is nothing inherently disreputable about the substitution of an inexpensive food product for one of higher price. Very often the cheaper food is the better food. If substitution is fraudulently practiced by dealers, it is, of course, to be condemned, but even then condemnation should be based upon economic rather than dietetic grounds. Miss Josephine L. Bessems, domestic science editor of the *Mother's Magazine*, has recently put together a pamphlet entitled "Meals for Five or Six Dollars a Week" which contain much good sense as to the substitution of one food for another. Commissioner Foust of Pennsylvania has advised Philadelphians to use substitutes for foods that are high priced, stating that "there is a substitute for almost every food product that is just as nourishing and tasty if we will only halt in our haste and find it." The New York City Department of Health has recently issued a pamphlet entitled "Save by Substitution," giving in great detail the relative costs and food values of many of the commoner food articles. From this bulletin the New York housewife learns, among others, that in place of butter which furnishes 2605 food units and costs from 45 cents to 52 cents a pound, she can substitute oleomargarine and various proprietary butter substitutes with an average food value of 3525 units and an average cost of 25 cents a pound. Such constructive work in behalf of intelligent substitution is of real service to a community.

The Food Manufacturer and the Law.

In this issue is to be found the fourth installment of *The Food Manufacturer and the Law*, the present chapter outlining the situation existing in 1901-2-3 with respect to the judicial interpretation of various state food laws in force at that time. It is a continuation of the chapter the first part of which appeared in the March issue.

Mixed Flour in the Sixty-fifth Congress.

As our Washington staff correspondent states, there is every likelihood of passage by the Sixty-fifth Congress of the Rainey Mixed Flour Bill. This is, as the readers of this JOURNAL know, an effort upon the part of Representative Rainey of Illinois to remove the hampering restrictions laid upon the manufacture and sale of mixed flour some twenty years ago at the instigation of the wheat flour millers and to place it in the domain of wholesale compounds—where it undeniably belongs. Notify your congressmen to insist upon its being brought to a vote.

Oleomargarine Legislation.

Senator Underwood's amendment was defeated by a vote of 59 to 21. At the last minute the effect of skillful work with certain high political potentates was seen in the Senate chamber and the bill's defeat was thereby brought about. This is unfortunate but not disheartening. The senatorial discussion brought out much that was of value in respect to the wholesomeness of margarine and in respect to the undesirable qualities of the present regulation. It appears to this JOURNAL that both the Underwood bill and the Aswell bill were imperfect to the extent of calling for any tax whatever on margarine. A demand for tax-free margarine is justified by the existence of present food control machinery, and certainly such a demand is more logical than is a request for a change from a tax of 10c a pound on colored and ¼c on uncolored to a 2c flat tax on all margarine manufactured. The manufacture of margarine should be inspected but there is no more reason to levy a tax on each pound produced in order to defray the cost of that inspection than there would be to levy a tax upon meat to defray the cost of the operation of the Bureau of Animal Industry.

Mail Order Food Advertising.

One of the largest publishing houses in this country has recently closed its advertising columns to mail order advertising. This affects *The Delineator*, *The Designer*, and *The Woman's Magazine*, with a combined monthly circulation in excess of a million and a half copies. While not much food is sold direct by the manufacturer thereof to the consumer on orders received through the mail, many of the so-called catalogue houses conduct food departments of some magnitude. Sears, Roebuck & Company turn over $11,000,000 annually in their grocery department and other houses presumably do proportionately well. Although the never ending warfare waged upon the catalogue houses by retail merchants is largely of selfish generation, there are certain aspects of it which are of general interest. Undeniably from a pragmatic point of view, the mail order house has proven its point. It works. Catalogue houses have been in successful operation for a sufficient length of time to prove that they can render satisfactory service to the public and at the same time make money. Those two requirements are basic in any discussion of trade and both are answered in the affirmative by the modern catalogue house. If the products handled by the mail order concerns were one half so bad as the average retail trade paper would have us believe the catalogue houses would long ago have disappeared—starved to death by disgusted customers. The wise man has ceased to criticise the quality of the goods sold by the better type of mail order houses; yet there is a real limitation to the usefulness of such houses. Consider drugs, for instance. Many who buy from a mail order concern certain articles logically handled by drug stores would soon cease dealing with the far distant concern if they realized that possibly in the future they must rely upon the mail order house for *all* their drugs. No family would be justified in taking any such chances with the stork, to say nothing of fortuitous accidents and sudden sickness. If the choice ever comes to "buy all your drugs at home or else get along without the local drug store," the decision of every sensible housewife in town will be in favor of the local drug store—make no doubt of that. And what is true of drugs is true to nearly the same degree of foods. At present the total amount of business done by mail order is not great. It bulks large in isolated cases and the fact that one mail order house on Monday, February 26th, took in one and two-thirds million of dollars as cash payments for miscellaneous orders is impressive. On the other hand, probably less than 10 per cent of the total traffic in goods handled by both mail order houses and local merchants is in the hands of the mail order houses.

Politics and Food Control.

Our Indiana staff correspondent has something to say concerning the always interesting subject of the relationship existing between politics and food control. Of course, there is no defense of the time honored custom of regarding all state jobs as political plums. And equally of course, it will probably be some time before we rid ourselves of the bad habit of "turning the rascals out" whenever there is a change in the dominant political party. Both political parties are equally at fault in this regard, so that the question can be discussed by democrat and republican alike. It is certainly refreshing to realize that by the governor of at least one state this old order of things is being assailed vigorously and intelligently. It is to be hoped that the good work will be kept up until the idea that there is a democratic method of administering a set of laws in contradistinction to a republican method of administering the same set of laws is relegated to the mental scrap heap where are to be found many other fallacies due to our two-party form of government.

Certification of Colors to Be Abandoned.

It is rumored that the governmental authorities will soon abandon their present custom of certifying synthetic colors. It is perhaps not generally known by the public that eight coal tar products which are entirely harmless are allowed the freedom of the food industry. The only possible danger in connection with their use is that of impurities due to bad methods of manufacture. The Government is at present allowing these colors to be used when their composition as evidenced by a chemical analysis is certified by the manufacturers to the Government but, so it is said, is soon to discontinue this practice. In the future the plan is to regard food colors from the same point of view as any other food accessory and to demand and expect wholesomeness, any lapse from virtue to be prosecuted to the full extent of the law.

Water at Butter Prices.

Candor occasionally compels one to call to the attention of those with whom differences have arisen the fact that certain editorial utterances of this Journal made many months ago were indeed well grounded. The fact that they were severely criticised at the time detracts not one iota from their intrinsic truthfulness. Those who think that this Journal has in days gone by been unfair to a certain type of butter manufacturer should read the article on another page of this issue entitled "Butter Adulterated with Water." It is an abstract of a recently decided Federal prosecution in Montana which fully sustains this paper in its editorial attitude toward butter adulterated with water. Be it said in passing that water is one of the most flagrant adulterants with which the American public is afflicted. The butter makers are not the only offenders, but they are selling one of the most expensive foods in existence—edible fat. Their case should be considered before all others because of the importance of butter and also because of the brazen manner in which certain butter men flout all effort at sane control. Other water adulterated foods will be considered by this Journal before long, but at the present time we are talking about butter which is selling, in Chicago, for about 50c a pound, an extremely high price for water.

In the Federal decision referred to the Court brings out clearly the fact that it is not any particular percentage of water in butter which determines whether or not it has been adulterated, but the fact that water has been added, the normal process of butter making being altered in order to incorporate the added moisture. Such rascality really should be prosecuted under the criminal code, but, failing that, it is good to know that the Federal courts apparently will no longer stand for butter to which water has been intentionally added. Those in close touch with the butter industry know that this far-reaching decision affects a very considerable proportion of present-day butter. In 1902 the United States Department of Agriculture's investigation showed that of 800 samples of butter the average was 11.78 per cent moisture. Since that time much attention has been paid to the matter of "over-run," and the creamery superintendent who allows his moisture content to fall below the deadline of 15.9 per cent is considered an old fogy. Four per cent of the annual output of butter figured at 50c a pound is quite a tidy sum. Those who desire to handle butter which has been adulterated by having added to it skillfully incorporated water will be interested to know the schedule of fees which is as follows: $600 per annum for the manufacturer, $480 per annum for the wholesaler, and $48 per annum for the retailer, the manufacturer being required to pay a stamp tax of 10c for every pound manufactured.

Those concerned with the factitious aspects of butter may also be interested to know that, in all probability, the next reform to be effected will be the compulsory declaration of added color. At present butter is about the only food product which can be artificially colored without notification of such coloration upon the container.

Of Current Interest

Commissioner Fricke Resigns.

Frederick H. Fricke, Food and Drug Commissioner of Missouri, has tendered his resignation to Governor Gardner. He retires to take charge of the National Food and Drug Information Bureau, with headquarters in the LaSalle Building, St. Louis. Mr. Fricke has served four years as food and drug commissioner of Missouri under Governor Major, and has been an active collaborator with the United States Department of Agriculture. His term expired in January.

Government Food Price Probe Abandoned.

The investigation of the high prices of food ordered by President Wilson, to be conducted jointly by the Federal Trade Commission and the Department of Agriculture, for which the President asked Congress $400,000, has been abandoned definitely. The appropriation bill passed the House but died in the Senate. It is expected, however, that the President will renew his efforts in the matter at the special session of the sixty-fifth Congress.

The Wicks Bill in New Form.

Much to the relief of the dairymen and merchants in New York state the Wicks Food and Markets Bill has been redrafted to meet their many objections. The new bill provides for a State Council of Farms and Markets composed of one member from each of the nine judicial districts and an additional member from the first judicial district and the New York City Commissioner of Markets, if established. The council, which is to serve without pay, is to appoint a Commissioner of Markets and the work of the department is to be divided and placed under their direction.

Oyster Growers' Association Meeting.

Boston is to be the center of interest for the oyster producers in May. The Oyster Growers' and Dealers' Association of North America will hold its next annual meeting in that city. The association is an important organization and its president, William H. Killian, is very active in the interests of its membership and the welfare of the oyster industry. William F. Wells, scientific investigator of the Bureau of Fisheries at Washington, is to conduct an investigation of oyster-growing conditions to be carried on by the Government and will coöperate with the association in its efforts for the betterment of conditions in the industry.

Tin Can Shortage Feared.

The Commission on Car Service of the American Railroad Association, at the instance of the Department of Agriculture and Commerce at Washington, has issued a request for a reduced freight rate for cans, both empty and filled. The scarcity of tin and the prospect of a great shortage of cans during the packing season this year, it is feared, will have a damaging effect on the food-canning industry, and measures to relieve the situation are being agitated in various quarters. A late report from Washington, D. C., relates that representatives of the National Canners Association presented to Secretary Redfield of the Department of Commerce a statement regarding conditions in the tin can trade that militate seriously against the production of canned foods and threaten a great shortage in the supply for this year. The scarcity of cans is attributed to the inability of manufacturers to obtain tinplate sufficient for their needs and in a measure to the congestion of cars on the railroads. Dr. E. E. Pratt, chief of the Bureau of Foreign and Domestic Commerce and other department officials had the matter in hand and in order to formulate remedial measures arranged to go to New York to confer with steel companies and railroad officials.

American Chemical Society Meets at Kansas City.

There will be a meeting of the American Chemical Society at Kansas City, Mo., beginning April 10, with headquarters at Hotel Muehlbach. In addition to many interesting addresses of a general chemical nature, there will be delivered several of particular interest to those in the food industry, among others being "Vinegar Investigations, Being a Study of the Changes that Cider Undergoes During Fermentation and Prolonged Storage and its Subsequent Conversion into Vinegar in Rotating Generators," by B. G. Hartmann and L. M. Tolman; "An Improved Method of Determining Citral in Lemon Extracts," by R. S. Hiltner and C. E. Parker; "Arsenic, Copper and Zinc in Oysters," by W. S. Long; "The Practical Use of Alfalfa Flour," by Elizabeth C. Sprague; "Composition of the Dwarf Chestnut" (*Chinquapin*), by W. A. Whitaker and W. A. Goldtrap; "The Examination of Malted Milk," by Jacob Jay; and "The Mineral Elements of the Avocado," by M. E. Jaffa and F. W. Albro. Provisions have been made for excursions to various nearby points of interests to industrial chemists. Dr. T. J. Bryan of the Calumet Baking Powder Company, Chicago, is chairman of the committee on Agricultural and Food Chemistry and Mr. Glen F. Mason of H. J. Heinz Company, Pittsburg, is secretary thereof.

Specialty Manufacturers Discuss the Formation of a Technical Section.

During the course of a recent meeting in New York of the American Specialty Manufacturers' Association the suggestion was made that inasmuch as twenty-five or more members of the association have chemists in their organizations it might be well to form a Technical Section. The purpose of the new section would be to bring about coöperation along appropriate lines among the members of the association; to coöperate with food control officials, and to take up matters of chemical research of interest to the specialty field. The discussion brought out the point that while there were several matters of a chemical nature which were of general interest to many members of the association, there were also many that were of but little common interest to the members as a whole. The final decision was to the effect that no organization would be attempted at this time but that occasional conferences would be arranged for in order to exchange views on scientific topics.

Price Maintenance in Canada.

An interesting reflection on the High Cost of Living comes from Canada, where an official commission has made a ruling under the stringent war measures as follows:

"Any manufacturer, wholesale merchant, dealer, agent or commission merchant who either directly or indirectly stipulates, agrees or arranges that any goods, wares or merchandise sold or otherwise disposed of by or to him shall be sold by any purchaser thereof at a price not less than one prescribed by him, or who in any way endeavors to prescribe a price below which a purchaser shall not sell the same, shall be guilty of an offense and shall be liable, upon summary conviction, to a fine not exceeding five thousand dollars or to imprisonment for a term not exceeding three months or to both fine and imprisonment."

Whale Steaks and Tenderloin.

The whale canning business is growing into an industry of considerable importance on the Pacific coast, according to recent reports. Several species, notably the Gray whale, are quite numerous in California waters and the demand for "sea buffalo steak" has kept one large canning concern at Long Beach very busy. A retail market at that point is said to dispose of 500 pounds a day, the tenderloin selling at fifteen cents a pound and the parts containing bones at ten cents. This comparatively new food industry is said to be cutting in, to some extent locally, on the meat business and no doubt helping to check the high cost of meat in that section. It is stated that the meat of one sixty-foot whale is equal to that of seventy head of cattle, and it tastes like choicest beefsteak when properly prepared.

Deterioration of Milk by Shipping.

Comparisons of bacterial growth between the time of taking the first samples of A grade raw milk when delivered at the Warrensburg, Mo., milk station and the second, when the same cans reached Kansas City, show some remarkable data. The reports of tests made by E. R. Smith of the city laboratory on the two samples were handed to W. H. Phipps, food and dairy commissioner.

The first samples taken from the milk cans of one farmer at Warrensburg showed, under the one 1,000th dilution process, counts of 6,000 general bacteria, and with the one 10,000th dilution process, 90,000 general bacteria. The unbelievable growth of 2,650,000 and 2,060,000 general bacteria was produced on the second series of test samples. However, in another case where the tests of the first samples showed 4,000 and 10,000 general bacteria the second tests showed 11,000 and 40,000, and there were indications that even after nearly two days' holding and shipping the milk in bacterial count was less than that required for A grade. It was a significant fact that in neither case B-coli was found. Plans are being made for other out-of-town tests soon.

Candy Manufactured Last Year.

The candy factories of the United States, numbering more than 2,500, and representing an investment of $110,000,000, during the last year made $200,000,000 worth of sweets. The average yearly output is valued at $185,000,000, representing an annual expenditure of $1.80 per capita for the entire country. Eighty-five per cent of all the candy sold in the United States is valued by the manufacturer at fifteen cents a pound or less, and 75 per cent of the highest grade confectionery made in the United States is valued at less than thirty-five cents a pound.

In a brief recently prepared by Thomas E. Lannen, attorney for the confectioners, before the Interstate Commerce Commission, he states that the average value per pound of the total tonnage of 111 members of the National Confectioners' Association was 12.34 cents per pound to the wholesale trade and the average price to the retailer was 14.77 cents per pound. It is also learned that the great bulk of confectionery is sold to the consumer at twenty to twenty-five cents a pound, and that not to exceed 5 per cent of the candy handled by average retailers is of the grade that sells at sixty cents to a dollar per pound.

Carlile P. Winslow Appointed Director Forest Products Laboratory.

Announcement is made by the Forest Service of the appointment of Carlile P. Winslow as Director of the Forest Products Laboratory, at Madison, Wisconsin, to succeed Howard F. Weiss, whose resignation takes place April 1. Much instructive work in regard to wooden containers has been done recently by this laboratory.

Mr. Winslow was graduated from the Sheffield Scientific School of Yale University in 1905, and entered the Forest Service in 1908. Since that time he has been engaged in research work in forest products. For the past four years he has acted as assistant to the director of the laboratory. His familiarity with the work of the laboratory and his knowledge of the problems to be studied have led to his selection as the successor of Mr. Weiss.

Report of Cold Storage Holders of Apples, March 1, 1917.

Reports for 512 storages show that their rooms contain 1,363,103 barrels and 2,460,274 boxes of apples on March 1, 1917. The information received indicates that there were 36.3 per cent less apples in storage than on March 1, 1916, while the amount held March 1, 1916, was 19.9 per cent more than on March 1, 1915. The barreled apple holdings of March 1, 1917, show a decrease of 49.6 per cent from those of March 1, 1916, while the boxed apple holdings show an increase of 12.4 per cent over those of March 1, 1916. On March 1, 1916, there were 40.5 per cent more barrels and 25.7 per cent less boxes in storage than on March 1, 1915.

Reports of Cold Storage Holdings of Creamery Butter, March 1, 1917.

Reports from 286 cold storages show that their rooms contain 15,542,532 pounds of creamery butter while on February 1, 299 storages reported 30,454,200 pounds. The 215 storages that reported holdings on March 1 of this year and last show a present stock of 14,582,975 pounds as compared with 15,032,769 pounds last year, a decrease of 449,794 pounds or 3.0 per cent. The reports show that during February the February 1 holdings decreased 48.1 per cent, while our last report showed that during January the January holdings decreased 34.5 per cent. Last year the decrease during February was 50.4 per cent, and in January 36.5 per cent.

Report of Cold Storage Holdings of American Cheese March 1, 1917.

Reports from 321 cold storages show that their rooms contain 13,069,756 pounds of American cheese, while on February 1, 318 storages reported 20,415,436 pounds. The 214 storages that reported holdings on March 1 of this year and last show a present stock of 9,149,466 pounds as compared with 13,373,424 pounds last year, a decrease of 3,923,958 pounds or 29.3 per cent. The reports show that during February the February 1 holdings decreased 35.3 per cent, while our last report showed that during January the January 1 holdings decreased 33.9 per cent. Last year the decrease during February was 26.4 per cent, and in January 26.2 per cent.. A summary of this report was released by wire on March 9. As a number of firms have not responded to our inquiries, this report does not include all holdings. Upon request any or all of the information contained in the cold storage reports will be telegraphed immediately upon its release. These reports are free, except for the telegrams, which are sent charges collect.

Report of Cold Storage Holdings of Eggs, March 1, 1917.

Reports from 301 cold storages show that their rooms contain 5,381 cases of eggs while on February 1 302 storages reported 148,943 cases. The 233 storages that reported holdings on March 1 of this year and last show a present stock of 4,759 cases as compared with 34,761 cases last year a decrease of 30,002 cases or 86.3 per cent. The reports show that during February the February 1 holdings decreased 97.2 per cent, while our last report showed that during January the January 1 holdings decreased 83.7 per cent. Last year the decrease during February was 91.9 per cent, and during January 66.7 per cent.

Report of Stocks of Frozen and Cured Meats, March 1, 1917.

FROZEN BEEF.

The total stocks of frozen beef reported by 246 firms on March 1, 1917, amounted to 157,701,821 pounds, while the total stocks reported by 213 firms on February 1, 1917, amounted to 209,040,766 pounds.

CURED BEEF.

The total stocks of cured beef reported by 259 firms on March 1, 1917, amounted to 37,948,483 pounds, while the total stocks reported by 265 firms on February 1, 1917, amounted to 39,527,827 pounds.

FROZEN PORK.

The total stocks of frozen pork reported by 221 firms on March 1, 1917, amounted to 59,757,807 pounds, while the total stocks reported by 217 firms on February 1, 1917, amounted to 69,084,431 pounds.

FRY SALT PORK.

The total stocks of dry salt pork reported by 322 firms on March 1, 1917, amounted to 246,191,182 pounds, while the total stocks reported by 333 firms on February 1, 1917, amounted to 220,350,327 pounds.

SWEET PICKLED PORK.

The total stocks of sweet pickled pork reported by 398 firms on March 1, 1917, amounted to 349,810,551 pounds, while the total stocks reported by 407 firms on February 1, 1917, amounted to 328,846,538 pounds.

LARD.

The total stocks of lard reported by 369 firms on March 1, 1917, amounted to 80,585,003 pounds, while the total stocks reported by 372 firms on February 1, 1917, amounted to 90,073,593 pounds.

FROZEN LAMB AND MUTTON.

The total stocks of frozen lamb and mutton reported by 127 firms on March 1, 1917, amounted to 4,992,035 pounds, while the total stocks reported by 122 firms on February 1, 1917, amounted to 6,116,835 pounds.

Legalizing Sale of Horse Meat.

The Board of Health of New York City has granted permits for the sale of horse meat under the Sanitary Code and subject to regulations by the Board, which provide that horse meat only may be sold in establishments licensed for that purpose. The horses must be slaughtered under the supervision of veterinarians of the Department of Health, and every precaution is taken to safeguard the consumer. Regarding the consumption of horse meat Dr. W. Horace Hoskins, Dean of the New York State Veterinary College, wrote to the Department of Health a letter containing the following:

> I am much interested and quite approve of the action of your department in permitting the opening of establishments for the sale of horse meat.
>
> So clean an animal, so free from tuberculosis and many other serious lesions common to our flesh-producing animals, and the continually soaring high prices of animal foods, makes it extremely desirable that opportunities be afforded to obtain cheaper meats.
>
> The prejudice long held by so many people against horse meat, I trust, will soon be eliminated.

Underwood & Underwood.

The first horse meat butcher shop in New York City was opened by John Sulzer at First avenue and 122nd street and it is said to be doing a thriving business. Customers having learned of its existence have come from parts remote from the shop to purchase. The butcher has handled the product before, having dealt in the line in Switzerland. The store is under the supervision of the Department of Health and the department takes all steps to insure the wholesomeness of the products. The sale of horse meat was made legitimate in response to a popular demand from various quarters to the effect that the prohibition against such sale was illogical and deprived many persons accustomed to horseflesh as an article of diet of a valueable source of meat supply.

Horseflesh is used as food in many European countries and experience has shown that it is palatable, the only differences between it and beef being that horseflesh is redder in color and a trifle tougher.

Shredded Wheat Company's New Officers.

The stockholders of the Shredded Company of Niagara Falls, N. Y., held their annual meeting February 13. About fifty stockholders were present, and nearly all the stock was represented by proxies. A. J. Porter, president, and Fred Mason, vice-president and general manager, read gratifying reports on the company's business of the last year. They showed net earnings of 12 per cent on the capital stock and an increase of 22 per cent in sales over the total of 1915. They disclosed the fact also that the company had purchased a large supply of wheat and other raw materials for this year at very satisfactory prices.

Promotion work planned for the current year included magazine and newspaper advertising and sampling, the newspaper portion alone covering 500 cities and reaching nearly 12,000,000 homes every day in the year, and so arranged as to co-operate with the sampling campaign.

In the election of officers nine members of the board of directors were re-elected, namely, Joseph Henderson, Toronto, Ont., Canada; Fred Mason, Niagara Falls; Ogden L. Mills, New York City; George A. Mitchell; Buffalo; A. J. Porter, Niagara Falls; Robert W. Pomeroy, Buffalo; de Lancey Rankin, Niagara Falls; Paul A. Schoellkopf, Niagara Falls; Carlton M. Smith, Buffalo. The board of directors elected the following officers: Chairman of the board, A. J. Porter, former president; president, Fred Mason, former vice-president and general manager; treasurer, Frank L. Morrin; secretary, R. W. Ogden, former assistant to the vice-president and general manager.

Appointments recommended by the newly-elected president and approved by the directors were: General manager, H. G. Flint, former general sales manager; manager of advertising, Truman A. De Weese; general superintendent, Wayland C. Marlow; manager purchasing department, R. F. Meek; manager welfare department, Eugene Girard.

Tariff Commission Nominations.

In his selection of members for the newly created tariff commission on March 14 President Wilson nominated six, as follows:

Prof. Frank W. Taussig of Harvard University; Daniel C. Roper, former first assistant postmaster general; David J. Lewis, former congressman from Maryland; William Kent, a former congressman from California, and still earlier an alderman in Chicago; William S. Culbertson, an attorney with the Federal Trade Commission; Edward P. Costigan, an attorney of Denver.

It is reported that not one of these men is an advocate of the protection principle and that the Republican senators asserted that in making these selections the President had violated the spirit of the law which provides that not more than three of the members shall be of the same political party. Professor Taussig was nominated for a term of twelve years, Mr. Roper for ten years, Mr. Lewis for eight years, Mr. Kent for six years, Mr. Culbertson for four years, and Mr. Costigan for two years. They are to receive $7,500 a year each.

Adolphus W. Green.

Adolphus Williamson Green, president of the National Biscuit Company, died March 8 in his apartments at the Hotel Plaza, New York City, at the age of seventy-four years. In the career of this man is found a striking exemplification of business acumen and pertinacity and a most unusual combination of legal and commercial adaptiveness. He was a lawyer and a business man and well equipped for public service in either department.

Mr. Green had for years been corporation counsel for various concerns and had established a fine reputation for perspicacity, and when, in 1890, he went in with the American Biscuit Company, and later with the United States Biscuit Company as counsel for those corporations, he began a career of greater scope in his professional usefulness and opened for himself the way to a commanding position in the commercial world. When the National Biscuit Company was organized, in 1898, he became general counsel for the company, which office he held for a time, but the stockholders, perceiving his ability as an organizer, as demonstrated in the consolidation of 116 separate baking plants, elected him chairman of the board of directors and in 1905 elected him president of the company.

Boston was Mr. Green's birthplace and it is said he possessed some of the finest traits of sterling New England character. He was a graduate of Harvard University in 1863 and until 1869 was engaged in educational pursuits, then studied law and was admitted to the bar in 1873 and took up the practice of corporation counselor, which he followed until he became the head of the National Biscuit Company. He traveled extensively and personally inspected the plants of the company and took active interest in all the mechanical problems arising through changes in plants and methods. In his transition from a strong figure in the legal profession to a prominent place in the commercial world he became a constructive force of great moment.

New President of the National Biscuit Company.

R. E. Tomlinson, formerly vice-president and general counsel of the National Biscuit Company, is now the chief executive of that corporation, succeeding the late A. W. Green. At the annual meeting of the stockholders of the company March 19, Mr. Tomlinson was advanced to the position left vacant by the death of Mr. Green. The new president is less than forty years of age, born in Chicago December 4, 1877, and educated in the schools of Oak Park. He studied law at the University of Wisconsin, was graduated in 1901 with degree of Bachelor of Laws, and was admitted to the Illinois bar. He then entered the law office of A. W. Green in Chicago and followed Mr. Green into the legal department of the National Biscuit Company, later serving as its assistant secretary. His rapid progress in the executive offices of the company is indicative of his capabilities as a man of business, and his elevation to the position of chief executive of this great commercial corporation is a fine tribute to his business ability.

Commissioner Barnard Speaks on the Responsibilities of Public Service.

At the annual convention of Indiana Inspectors of Weights and Measures and Milk, Meat and Food Inspectors held recently at Indianapolis, Commissioner Barnard took occasion to criticize the work of local officials. In discussing public service he said: "I am afraid—and I say it with regret—that some of you look upon your position as a sort of reward for service rendered instead of this opportunity for service which is today the finest thing before the American citizens. I fear that among the men who are charged with the regulation of the weights and measures system of the state are some who conceive their duty to be to serve the mayor or board who made the appointment; the political party with which they are affiliated, some group of men who created the office.

"It is indeed a pitiable thing to see mature men, endowed with the normal supply of intelligence, so utterly failing to see that whether one party or another is for the moment in political control is but an incident, important only to the office-holding class whose only interest in its job and who never even faintly realize that all the people care about is service. I welcome the advent of women into our political life because I believe that they will exact of their servants a full measure of service and that job hunters and job holders will get short shift at their hands.

"I am sure that their ideas of good citizenship will not consist wholly of registering or going to the polls on election day, or even of rounding up the ignorant and vicious to nominate some favored candidate or put some party in power. I hope that in the future we will see our cities governed by experts who know what they are about instead of by accident, by men who are big enough to see only the welfare of the city and whose ideas of party loyalty are so tempered that the one thing they will insist upon is both honest and efficient service.

"I want you to understand clearly and definitely that every inspector of weights and measures in Indiana is a deputy of the state department, not of the mayor or county commissioner; that he receives orders and advice from the state department, not from local bosses and machines; that the state department interprets the law, not the city or county attorney; that the laws of Indiana and not local ordinances guide your work; that the Supreme Court of the state and not police judges finally pass on the constitutionality of the law and that that law stands until the Supreme Court throws it out."

Interesting Correspondence Concerning Vinegar.

The subjoined correspondence is self-explanatory and is of interest from many points of view. The exchange of letters starts with a letter received by this office on the 24th instant coming from Mr. G. L. Flannery, a merchandise broker specializing in apple products and reading as follows:

> Rochester, N. Y., March 23rd, 1917.
>
> American Food Journal, Chicago, Ill.
>
> Gentlemen: I am enclosing herewith copy of an article that recently appeared in "The Canner," as well as a copy of a reply that I have just made to same, which I trust you may find it convenient to publish in the next issue of your paper.
>
> Thanking you in advance for your consideration, I remain,
>
> Very truly, yours,
>
> G. L. FLANNERY.

The article referred to by Mr. Flannery and to which he takes exception is the following:

WHAT'S IN YOUR VINEGAR?

If you ask the ordinary customer how vinegar is made, he will ot once reply, "From cider." He remembers the days down on the farm when Dad took a load of apples to the cider mill. When Dad returned, the cider barrels were placed in the cellar and the family revelled in cider so long as it was safe to do so without losing its church reputation; the next spring the barrel contained pure cider vinegar. But times have changed; commercial greed has found a much cheaper way to make "pure cider vinegar." A large amount of vinegar now in the state is made in this way: In various states outside of Michigan, windfall apples are dried in factories. The waste of cores, peelings and worms are also dried and shipped to so-called vinegar factories. This waste is moistened and allowed to partially ferment and rot in a hot room. The rotten part gives the color of cider. This rotten mass is mixed with water and pressed. The resulting juice is fermented, barrelled and labeled "Pure Cider Vinegar." This dope can be sold so cheap that it has driven legitimate cider vinegar made from fresh apple juice nearly out of the market. Although Michigan is the second state in the union in the production of apples and could supply her entire wants and that of other states with pure cider vinegar, thousands of bushels of cider apples lie rotting on the ground because of the unfair competition of this imitation vinegar. Thereby Michigan apple growers are deprived of part of their earnings and legitimate manufacturers in the state are driven out of business.

This department has seized several hundred barrels of this vinegar made from partially rotten peels and cores, the waste of evaporators. The sale of this imitation product as vinegar will not be permitted. Every effort will be made to put this stuff in the sewer instead of down people's throats. Dealers will be prosecuted for selling this stuff as vinegar. To protect dealers and jobbers this department will furnish the names of all manufacturers whom we have found to be making this imitation vinegar from peels and cores.

Michigan is going to return to the consumption of cider vinegar like "Dad" used to make from real cider made from real fresh apples, "down on the farm."

JAMES W. HELME, *Commissioner.*

Mr. Flannery's letter to Mr. Helme, who is no longer Food Commissioner for Michigan, follows:

> Rochester, N. Y., March 23rd, 1917.
>
> Hon. James W. Helme, State Dairy and Food Commissioner, Lansing, Mich.
>
> Dear Sir: You recently published an article in the State of Michigan Dairy & Food Department Bulletin 252-255, September to December, 1916, entitled "What's in Your Vinegar?" and I desire to ask if you do not think it would have been wiser had you acquired some superficial knowledge of the manufacture of waste and the conditions under which vinegar was manufactured therefrom, before you had so unqualifiedly condemned it?
>
> Before we go into the matter any further, Mr. Helme, I want you to distinctly understand that I am not for one moment endeavoring to condone the actions of those vinegar manufacturers who are manufacturing vinegar from waste and are selling such vinegar as "apple cider vinegar." On the other hand, it is very well understood that vinegar made from waste should be sold and branded as having been made from "evap-

orated apple products" or under some such similar qualification, as required by F. I. D. No. 140.

In the beginning of your article you go on to say that you remember when "Dad took a load of apples to the cider mill." Now, when he did this, you surely are not laboring under the impression that he took only "Tree-run fruit" for that purpose, for if so he was a very extravagant Dad, such fruit being too valuable to use for cider purposes. If "Dad" followed the same practice as his neighbors, he picked the fallen fruit up from the ground and took that fruit to the cider mill to be ground for his cider, after his other crops had been taken care of, in which case it had remained on the ground for some time and was not in the best of condition.

When the evaporators buy their fruit, they cannot use the same grade as your Dad used, for they must have a better quality for their evaporated apples. It is safe to say that the average evaporator uses a very large percentage of "tree-run" fruit, the remainder being the best class of "windfalls." After this fruit is peeled and cored, the cores and skins are placed immediately upon the kilns and dried, for if not, they would be of practically no value, and it is this finished product which is known as evaporated apple waste, fully 98 per cent of it being nice and clean and bright.

In your article you go on to state that "times have changed; commercial greed has found a much cheaper way to make pure cider vinegar." This overworked phrase sounds well to the masses, but do you not know that in the average year it costs the vinegar manufacturers from 10 to 50 per cent more to make vinegar from evaporated apple waste than from fresh apples? Take for instance this season, with waste selling at from 2¾ to 3c per pound, it would cost the vinegar manufacturer approximately 1¾c more per gallon for his evaporated apple products vinegar than it would for cider vinegar made from fresh apples, and this year is no great exception as far as the price of apples and waste is concerned.

Is it a fact to be condemned that in various States outside of Michigan, windfall apples are dried in factories? I do not deny this is the case, but is it not a fact that there are a great many such evaporators or factories within the borders of the State of Michigan, and there would be more if a sufficient supply of apples existed to warrant their presence? I personally have always looked upon the evaporated apple business as a legitimate and lawful trade, so am unable to understand why you appear to hesitate in admitting the presence of evaporators in your own State.

Your next statements, which I cannot help but contradict, are as follows: "This waste is moistened and allowed to partially rot in a hot room. The rotten part gives the color of cider. This rotten mass is mixed with water and pressed. This dope can be sold so cheap that it has driven legitimate cider vinegar out of the market." If there is one line or syllable of truth in all of the foregoing statements, I confess to being unable to find it. They are gross misstatements of the rankest kind and show plainly that you have not taken the trouble to inform yourself as to the manufacture of waste before you publicly condemned it, notwithstanding the fact that your State analyst, Mr. A. R. Todd, gives you some idea as to how evaporated apple products vinegar is made in his report addressed to you, which you published on page 9 of Bulletin 252-255.

I do not intend to take up your time describing the exact procedure of manufacturing vinegar from waste, for it is sufficient to say that the waste is not moistened and allowed to partially ferment and rot in a hot room, nor is the mass mixed with water and pressed. On the contrary, the waste is used by vinegar manufacturers in the coldest weather so that it cannot ferment, and during the manufacturing process it never touches a press. Furthermore, any vinegar expert will tell you that vinegar made from evaporated apple products is of finer quality and flavor than cider vinegar made from fresh apples and is not entitled to be called "IMITATION VINEGAR," as you deem fit to term it.

If you really think that thousands of bushels of apples lie rotting on the ground in the orchards in the State of Michigan each fall, it is not as you mention on account of unfair competition with EVAPORATED APPLE PRODUCTS VINEGAR, for how can it be when anyone who knows the first rudiments of the manufacture of vinegar, knows that evaporated apple product vinegar cannot be manufactured as cheaply as cider vinegar, neither is it true that legitimate manufacturers of vinegar in Michigan have been driven out of business on account of this competition, in fact I defy you to name one such manufacturer who through competition from EVAPORATED APPLE PRODUCT VINEGAR, has been driven out of business.

Why do you say that waste is not fit for vinegar and omit to state that 98 per cent of the blended jams and jellies, apple butter and kindred products are made almost wholly from waste and sugar? Why is it fit for one class of food products and not the other? I claim that your remarks are wholly inconsistent and misleading and I truthfully think that your article entitled "WHAT'S IN YOUR VINEGAR?" has done a great injustice to a very large body of manufacturers.

In conclusion will say that to make PURE APPLE CIDER VINEGAR for the consuming market like "DAD" used to "DOWN ON THE FARM," is commercially impracticable, and neither you nor I shall ever live to see the day when such vinegar will displace the generated article, for the time required to make such vinegar is not the short period mentioned in your article, but instead a much longer period of time.

Very truly yours,

G. L. FLANNERY.

This office immediately notified the office of the Michigan food commissioner to the following effect:

Chicago, March 24, 1917.

Hon Fred L. Woodworth,
Dairy & Food Department, Lansing, Mich.

My Dear Mr. Commissioner:—Several months ago I received from your office, but before your appointment as Commissioner, a press item entitled "What's in Your Vinegar?" I did not run it. Shortly afterward, I received from my Michigan correspondent a news letter on the same subject but in very different vein which, after discussing with certain food control officials in this city, I ran.

I am today in receipt of a letter from a Mr. G. L. Flannery of Rochester, N. Y., evidently a broker in apple products. He calls my attention to the fact that "The Canner" ran "What's in Your Vinegar" and that he has written a letter to your office in connection therewith, a copy of his letter being given me for publication. May I ask if you wish to send me either a copy of your reply to Mr. Flannery or a separate statement in this connection for publication in our April issue which goes to press on the last day of the month?

Very truly yours,

R. G. GOULD, Editor.

Mr. Helme, not Commissioner Woodworth, replied to Mr. Flannery, as is shown by the following transcript of his letter to that gentleman:

Lansing, Mich., March 28, 1917.

Mr. G. L. Flannery,
Rochester, New York.

Dear Sir: I am in receipt of your letter of March 23d taking certain exceptions to statements made by me in a bulletin published recently by the Michigan Dairy and Food Department and relative to vinegar made from waste dried apple products.

The first statement in your letter is that it costs more to make vinegar from apple wastes than it does from cider apples. Such is not the experience of manufacturers in this State if I am to believe their statements. My attention was first called to the vinegar situation in this state by the Oakland Vinegar Company of Lansing, who complained that they were not able to compete in price with vinegar made from waste. Several other manufacturers have since entered the same complaint. Investigations made by the department agents showed that vinegar made from waste was uniformly offered at a lower price than vinegar made from fresh apples. Only recently Chas. Weny and Son of Allegan, Michigan, spent a half day with me trying to get me to permit them to make vinegar from wastes and their sole argument was that they could do so cheaper than from cider apples and they are situated in an apple growing section of the State. Michigan is either the second or third State in the Union in the production of apples. Why should manufacturers in this State turn to waste products that are shipped in, rather than use the cider apples at their very doors, if waste vinegar costs more to produce? Every manufacturer of vinegar that I have talked with, and they include the largest manufacturers in the state, has uniformly told me that waste vinegar can be produced cheaper than that made from apples. Shall I believe their statements or those of a broker who does not manufacture?

In regard to the manufacture of waste vinegar, our investigations show that the waste was moistened and allowed to stand until it turned brown. What is this browning but oxidization, and what is oxidization but plain rotting, or decay in common language?

The agents of this Department spent many days investigating vinegar factories in Michigan. Written reports were made to me and studied by me. I spent hours and hours listening personally to many manufacturers of vinegar and while they did not agree in all their statements, on one thing they all agreed, and that was that vinegar could be made cheaper from dried apples than from fresh apples.

I have seen personally thousands of bushels of apples rotting on the ground in Michigan orchards for lack of a market; why should I allow Michigan apples to be displaced by a waste product shipped in from other states?

While I cannot name any Michigan factory that has been actually driven out of business by the competition of waste products, I can name almost any number of them who told me that they would be, if compelled to compete with waste vinegar.

The Michigan vinegar law says "no vinegar shall be sold or exposed for sale as apple or cider vinegar which is not the legitimate product of pure apple juice." A further definition in the law says that cider vinegar shall be "derived by fermentation of the expressed juice of apples." I held that the product of dried peels and cores was not "pure apple juice" nor was it derived from the "expressed juice of apples."

Most of the waste vinegar seized was labeled "pure cider vinegar." The Michigan law recognized just three kinds of fermented vinegars and no more as salable in the State; apple or cider vinegar made from pure apple juice, malt vinegar made from barley malt or other cereals, and sugar vinegar made from glucose, molasses or refined syrup. Distilled vinegar made from dilute alcohol is also mentioned. As waste vinegar did not come under any of these classes I held that under our present law it was unsalable in Michigan.

Yours very truly,

J. W. HELME,
Formerly Dairy & Food Com'r.

Rosenau to Investigate Canned Foods

THE National Canners Association offered Harvard University $20,000 a year for three years to be spent in investigating food poisoning, with special reference to canned goods. The university has accepted the gift with the understanding that the investigation shall be conducted in a thorough and far-reaching manner and its results published with full academic freedom. Prof. Milton J. Rosenau, of the Harvard Medical School, will have charge of the work and will direct the expenditure of the money.

Prompted by numerous lawsuits filed because of alleged cases of poisoning from canned goods, the canners concluded that the only way to shut off the annoying and suspicion-breeding lawsuits and uncover the real source of the trouble was to institute an ex-parte investigation. In this connection the National Research Council issued the following announcement:

"It has long been recognized that many questions relating to the canning and preservation of food and food products of great importance to the health of the community need further investigation and solution; prominent among these is that of good poisoning. In the absence of such knowledge, many cases of illness have been attributed to food poisoning that have actually resulted from entirely different causes.

"With a view to supplying this deficiency in the record, an investigation on the subject of food poisoning will be undertaken by the Harvard Medical School in its department of preventive medicine and hygiene. This investigation has been organized by the National Research Council, and the work has been intrusted to Professor M. J. Rosenau of Harvard. The results of the research will be published through the regular scientific channels.

"The National Research Council, acting under the advices of Dr. William H. Welch, president of the National Academy of Sciences, has named the following Advisory Commission to have supervisory charge of the investigation":

Prof. John J. Abel, Johns Hopkins University.
Prof. Reid Hunt, Harvard University.
Prof. E. O. Jordan, University of Chicago.
Prof. Lafayette B. Mendel, Yale University.
Prof. Frederick G. Novy, University of Michigan.
Prof. Eugene Opie, Washington University.
Prof. H. Gideon Wells, University of Chicago.

The men selected for this important work are well known to many readers of this journal, but there may be some to whom an outline of their histories would be of interest and value, and for that reason a brief biographical account is given.

Professor Milton Joseph Rosenau is a sanitarian of high repute, who was born in Philadelphia January 1, 1869, and was educated in the high schools of that city. He received his M. D. in the University of Pennsylvania in 1889 and pursued his post-graduate studies in the Hygienische Institute of Berlin in 1892-3; L'Institut Pasteur, Paris, 1900; Pathologisches Institut, Vienna, 1900. He saw public service as surgeon of the Public Health and Marine Hospital Service from 1890 to 1909, and was director of the Hygienic Laboratory of that institution from 1899 to 1909. He has been professor of preventive medicine and hygiene of the Harvard Medical School since October 1, 1909. He was director of the School for Health Officers at Harvard University and Massachusetts Institute of Technology in 1913, a member of the Massachusetts Board of Health from 1912 to 1914; director of the Anti-toxin and Vaccine Laboratory in 1914. From 1895 to 1898 he was a quarantine officer at San Francisco, and in 1900 was a delegate of the United States to the Tenth International Congress of Hygiene and Demography, and the Thirteenth International Congress of Medicine and Surgery at Paris in the same year. He was a member of the International Commission for the Revision of Nomenclature of the Causes of Death at Paris in 1900, and was sanitary expert of the Second Pan-American Conference at the City of Mexico in 1901. He was awarded a gold medal by the American Medical Society for service to humanity in 1912-13. In 1898 and 1899 he organized quarantine quarters at Santiago and Cuba. He is a member of the Society of American Pathology and Bacteriology and other medical and scientific organizations, and the author of many books on preventive medicine and hygiene and pasteurization. His home is in Brookline, Mass.

Professor John Jacob Abel, pharmacist, was born in Cleveland, O., May 19, 1857. He received the degree of Ph.D. at the University of Michigan in 1883, A. M. in 1903, Sc.D. in 1912, and Sc.D. at the University of Pittsburgh in 1915. He was principal of high school in 1879, and superintendent of schools at La Porte, Ind., from 1880 to 1882. He was a graduate of Johns Hopkins University in 1883-84. From 1884 to 1891 he was a student of chemistry and medicine at Leipsig, Strassburg, Heidelburg, Vienna, Berne, Würzburg and Berlin. He was lecturer and professor of materia medica and therapeutics at the University of Michigan in 1891 to 1893, and was editor of the Journal of Pharmacology and Experimental Therapeutics. He is a member of the Association of American Physicians, the American Physiological Society, National Academy of Sciences and other similar bodies. He has been engaged in numerous researches on animal tissues and fluids. He is located at Johns Hopkins University, Baltimore.

Professor Reid Hunt is a pharmacologist. His birthplace was Martinsville, O., April 20, 1870. He received the degree of A. B. at Johns Hopkins University in 1891 and Ph.D. in 1896. He studied at Bonn, Germany. In 1896 he was M. D. in the College of Physicians and Surgeons at Baltimore. He was tutor physician at the College of Physicians and Surgeons, Columbia University, from 1896 to 1898, and associate professor of pharmacology at Johns Hopkins from 1898 to 1903. From 1904 to 1913 he was chief director and professor of pharmacology in the medical department of the United States Public Health Service, and in 1913 was professor of pharmacology in the medical department of Harvard University. He is a member of the principal medical societies, a contributor to American and European medical journals, and author of a number of valuable medical works. His home is in Boston.

Professor Edwin Oakes Jordan, bacteriologist, was born in Thomaston, Me., July 28, 1866. He received his Ph.D. at Clark University in 1892. In 1896 he studied at the Pasteur Institute in Paris. He was chief assistant biologist of Massachusetts Institute of Technology in 1889-90, and a fellow in morphology at Clark University from 1890 to 1892, associate professor of anatomy 1892-93, and chairman of the department of hygiene and bacteriology at the University of Chicago since 1914. He was chief of the serum division at the Memorial Institute for Infectious Diseases in Chicago, and joint editor of the Journal of Infectious Diseases. He is a member of the National Academy of Sciences, University of Chicago, American Public Health Association, American Water Works Association and numerous other scientific and medical organizations. He is the author of "General Bacteriology." He is located at the University of Chicago.

Professor Lafayette Benedict Mendel, physical chemist, was born in Delhi, N. Y., February 5, 1872. He received his A. B. at Yale in 1891 and Ph.D. in 1893. His research studies were pursued at the universities of Breslau and Freiburg in 1895 and 1896. He taught at Yale in 1892 and was assistant professor from 1897 to 1903. He studied in the Sheffield Scientific School of Yale and was a member of the governing board. He is a member of the Academy of Sciences, Physiological Society, American Society of Naturalists and other distinguished bodies. He edited the Journal of Biological Chemistry and has contributed many valuable articles to medical publications. He lives in New Haven, Conn.

Professor Frederick George Novy is a bacteriologist of note who was born in Chicago December 9, 1864. He received the degree of B. S. at the University of Michigan in 1886, M. S. in 1887, Sc.D. in 1890, and M. D. in 1891. He studied in Koch's laboratory, Berlin, in 1888, the Pasteur Institute, Paris, in 1897, and in Prague in 1894. He was assistant in organic chemistry in 1887, and assistant professor from 1891 to 1893. He has been professor of bacteriology and director of the hygienic laboratory at the University of Michigan since 1902. He was a member of the United States commission to investigate the plague in 1901, and member of the State Board of Health from 1907 to 1909. He is the author of "Cocaine and Its Derivatives," "Laboratory Work in Bacteria" and other medical works. His home is in Ann Arbor, Mich.

Professor Eugene Lindsay Opie, pathologist, was born in Staunton, Va., July 5, 1873. He received the degree of A. B. at Johns Hopkins University in 1893 and M. D. in 1897. He was medical house officer at that university in 1897 and 1898 and assistant instructor and associate in pathology from 1897 to 1904, in the same years serving as pathologist at the Bay View Asylum. From 1904 to 1910 he was a member of the Rockefeller Institute for Medical Research, and from 1907 to 1910 was visiting pathologist of the Presbyterian Hospital, New York. In 1910 he was professor of pathology at the Washington University, St. Louis, and from 1912 to 1915 was dean of the medical school of that institution. From 1898 to 1902 he was engaged upon researches of anatomy and pathology of the pancreas and the relation of the pancreas to diabetes. He is a member of the Association of Physicians, the American Association of Pathology and Bacteriology and other similar bodies. He is the author of "Diseases of the Pancreas" and was co-editor of the Journal of Experimental Medicine from 1904 to 1910. He lives in St. Louis.

Professor H. Gideon Wells, pathologist, was born in New Haven, Conn., July 21, 1875. He received his Ph.B. at the Sheffield Scientific School of Yale in 1895, and A. M. at Lake Forest, Ill., University in 1897, M. D. at Rush Medical College, Chicago, in 1898 and Ph.D. at the University of Chicago in 1903. He was interne at the Cook County Hospital in 1898-9. In 1904 and 1905 he studied in Berlin. He was associate in pathology in 1901 and 1902, instructor in 1903 and 1904, assistant professor from 1904 to 1909, associate professor from 1909 to 1913, and dean in medical work at the University of Chicago. He was director of medical research at Otho S. H. Sprague Medical Institute, Chicago, in 1911. He is a member of the Association of American Physicians, the Cancer Research Society, A. M. A., Chicago Pathological Society and other distinguished bodies. He is the author of "Chemical Pathology" and a contributor to medical and biological journals. He is located at the University of Chicago.

From this account it will be seen that the investigation will be carried on by men eminently fitted for the work.

Disease emanating from food contaminated with pathogenic organisms is of quite common occurrence, the most common form being typhoid fever transmitted by milk that has been handled by a typhoid carrier. Food in many other forms is often contaminated by being handled by persons who carry germs of disease. The phrase "food poisoning" covers various forms of disease arising from this source, notably "ptomaine poisoning," which sometimes is misapplied and leads to an unjust criticism of foods.

In the treatment of the subject of food poisoning scientific literature sometimes is at fault and even text-books on the practice of medicine are inaccurate in their references to the technology of food production. There is a quite general belief among investigators of the question that disease is commonly caused by canned foods, which frequently leads to the publication of cases of illness mistakenly attributed to eating canned foods.

The National Canners Association has for the last ten years carefully investigated all such notices that have come to its attention and has found that almost all of them were entirely baseless. Most of the cases were shown conclusively to be due to other causes and many obviously were trumped up for the purpose of collecting damages.

Butter Adulterated With Water

On page 650 of volume 238 of the Federal Reporter is to be found the details of a suit-at-law styled the Henningsen Produce Company versus Whaley, Internal Revenue Collector, decided January 8, 1917, the United States District Court of Montana having much of interest to say concerning the adulteration of butter by means of added water.

In support of his decision that the Henningsen Produce Company was the manufacturer of adulterated butter and therefore subject to tax, the Court, in brief, holds that the regulation of the Commissioner of Internal Revenue to the effect that butter containing 16 per cent or more of moisture is adulterated, is more than a rule of procedure and administration, being legislative in character. The commissioner's regulation would amend, change, annul, expand, and contract the Internal Revenue act. It ignores means, intent, and effect, the very substance of the act, and counts alone on condition, however produced, contrary to the act. It imposes taxes where not due, and waives them where due. It creates some offenses, and pardons, even licenses, others. The commissioner has no such power. Neither the act nor general statutes confer it on him.

However, the case goes further and holds that the plaintiff's methods of churning—preparation of cream, temperatures, churn revolutions, washing, salting, and working, any and all of which affect the amount of moisture in the finished product—were not dictated alone by what, under the circumstances, was ordinary, usual, customary, recognized as good practice, and with an eye single to the quality of the butter; in brief, were not *normal*, but were modified with the intent that the butter should contain 15.9 per cent moisture and all practicable within the 16 per cent of the regulation. The plaintiff admitted that its aim and instructions were not to exceed 15.9 per cent moisture. Also, that when at the final stage of making butter the sample showed substantially lower than 15.9 per cent, the butter was additionally worked, solely to increase, as it did, its moisture content. It is obvious that the plaintiff's instructions were not only not to exceed 15.9 per cent moisture, but were also to modify normal methods when necessary, to increase moisture to that amount, and this was done; a "process" was "used with intent or effect of causing the absorption of abnormal quantities of water, milk, or cream," resulting in "adulterated butter" within the statute, whether the moisture content was 16 per cent, or more, or less, the court holding that *the determining factor is not any particular percentage of moisture, but the means and intent by which moisture is increased.* "In one case butter containing 18 per cent of moisture may not be adulterated; in another case, containing 12 per cent, it may be."

The Court goes on to say that it is believed that any departure from methods appropriate to the circumstances of the particular churning—any departure from methods calculated to result in a product of appropriate quality—with intent and effect to increase moisture over what it would have been but for such departure, has caused "absorption of abnormal quantities of water, milk, or cream," and brings the product within the statute.

Manufacturers take advantage of it (*the regulation*) to deliberately increase the moisture content of butter. It may be from less than 1 up to 3 per cent and more; to any point short of the regulation's 16 per cent. It follows that a tremendous amount of water is sold at butter prices, doubtless aggregating millions of dollars annually, which would not be the case but for the license seen in the regulation—a curious and injurious result of the administration of a beneficial law.

The Food Situation of the Country

By D. F. Houston
Secretary of Agriculture.

SECRETARY of Agriculture D. F. Houston, in a recently issued statement, said that "there is nothing in the food situation of the country which justifies hysterical thinking or action. This is not a time for hysteria. Nor is this a time for the thought of the American people to be directed or dominated by those who have the interests of another country primarily at heart or any selfish interest to further.

"The prices of foodstuffs are high. A full and satisfactory explanation of prevailing prices is not possible on the basis of existing knowledge. It is only recently that agencies have been created in the country to study food distribution, and we have not all the necessary facts to enable us to arrive at the truth. Where the food supply is located, who owns it, what may be the difficulties of securing it, whether the local market conditions are due to car shortage, whether there is artificial manipulation or control, no one can state with certainty. It is essential that we have the facts not only because of the light they might throw on present conditions but also because they are prerequisite for the working out of a permanent, just and economical system of marketing. Therefore the investigation directed by the President ought to be made promptly, and Congress ought to give the Federal Trade Commission and the Department of Agriculture the necessary funds. Certainly such an investigation can not furnish immediate relief, but it would be absurd to oppose it for this reason. It does not stand in the way of any other measures that may be wise. It does not prevent any constructive action on the part of any municipal or local agencies. We must have the facts and the sooner the investigation is undertaken the better. It is highly probable that as a result of it large permanent improvements may be made.

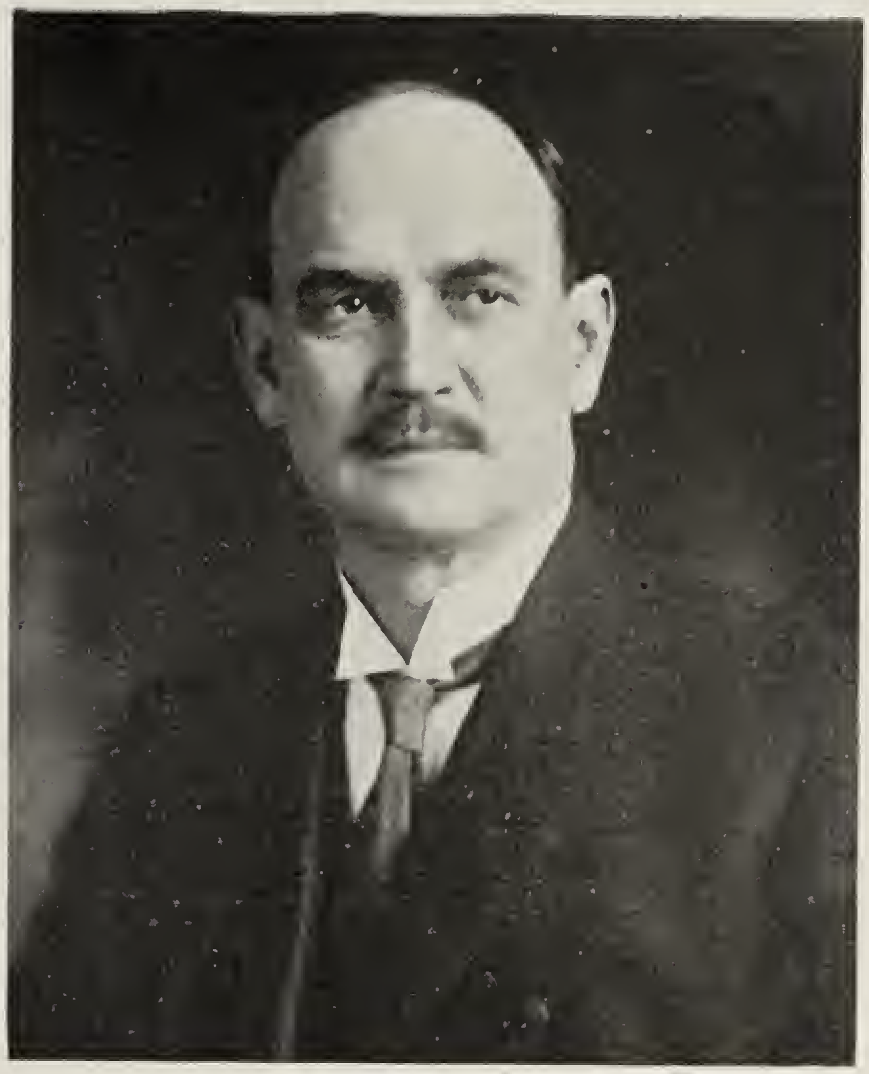
IMPORTANCE OF FOOD CONSERVATION.

For partial immediate relief, every individual and community should consider earnestly the matter of food conservation and the limitation of waste. As a nation we seem to have a disdain of economizing. In many homes there is a strong feeling that it is "only decent" to provide more food than will be eaten and that it is demeaning to reckon closely. The experts of the Department of Agriculture report to me that the dietary studies made by them point to an annual food waste of about $700,000,000. Of course, the waste in families of very limited means as slight, but in the families of moderate and ample means the waste is considerable. Even if the estimate were reduced by half the waste would still be enormous.

The food waste in the household, the experts assert, results in large measure from bad preparation and bad cooking, from improper care and handling, and, in well-to-do families, from serving an undue number of courses and an overabundant supply and failing to save and utilize the food not consumed. As an instance of improper handling, it is discovered that in the preparation of potatoes 20 per cent of the edible portion in many cases is discarded.

THE POSITION OF THE FARMER.

I am informed that the belligerents in Europe in dealing with their food situation have, up to this time, accomplished their purposes more largely through conservation of foods, regulation of the diet, limitation of courses and quantities, and prevention of waste, rather than through direct control of production or regulation of distribution under any sort of dictatorship. Only recently has England indicated her intention to deal directly with production, and in doing so has recognized it as essential that they guarantee to farmers a reasonable minimum price over a period of years. Obviously, if farmers are to be induced to increase acreage, a guarantee of a reasonable price by the nation or the community seems necessary. Farmers are governed by the same thinking and motives as other people. They are patriotic; but it is unlikely that they will undertake greatly to increase their output unless they are reasonably sure that it will be profitable for them to do so. One could no more expect a farmer greatly to increase his product without a knowledge of the outcome, than he could expect a manufacturer to double the production of shoes unless he knew that he could dispose of them profitably. Those who are urging that farmers be induced greatly to increase their acreage beyond that which their own judgment dictates, know very little about the psychology of farmers, or of other people for that matter, or about the fundamental necessities of the situation. As a matter of fact, farmers are going to do their own thinking in this matter and will not follow anybody's dictation. They are quite alert to the interplay of supply and demand, and respond quite as quickly as other people to the stimulus of high prices. Before touching upon this particular point further, a word should be said about the estimated food supply of the country for the current year.


DAVID FRANKLIN HOUSTON.

ESTIMATED FOOD SUPPLY FOR CURRENT YEAR.

The weather conditions during the growing season of 1916 were unfavorable in many parts of the world. They were distinctly unfavorable in this country. Although there was a large wheat acreage, the weather conditions were such as to favor the appearance of the black-rust disease affecting wheat. The consequence was that although the acreage was large the yield was relatively small. The conditions were not especially favorable for corn and for some other important crops. Still the food output on the whole for the current year was not so small as to excite alarm. The corn crop was 2,600,000,000 bushels, nearly the five-year average. The oat crop was above the five-year average, the barley very nearly the five-year average, rye ten million bushels more than the five-year average, and rice 40,000,000 bushels, as against

29,000,000 bushels the year before, and 24,500,000 bushels, the five-year average. The production of kafir corn, a relatively new crop, was 50,000,000 bushels. The production of peaches, 37,000,000 bushels, of pears 10,400,000 bushels, and of apples 67,500,000 barrels, represents approximately the five-year average, while the estimated production of oranges was 23,800,000 boxes, or 2,600,000 more than that of the preceding year. The crop of sugar beets was one of the largest ever produced. Meat products, likewise, were produced in larger quantities, the estimated amount for the year being 22,378,000,000 pounds as against a five-year average of 19,712,000,000 pounds, or 2,000,000,000 pounds greater than the output for the year 1915. Dairy products on the whole showed a gain as follows:

	1916.	1915.	1914.	Average, 1910-14.
Milk produced, gals.	7,959,656,000	7,696,844,000	7,506,794,000	7,569,926,000
Milk sold, gals.	2,061,551,000	1,993,482,000	1,944,260,000	1,960,611,000
Butter, lbs.	1,059,771,000	1,024,780,000	999,476,000	1,007,882,000
Cheese, lbs. ...	12,246,000	11,841,000	11,549,000	11,646,000
Butter fat sold, lbs.	326,346,000	315,571,000	307,778,000	310,367,000
Cream sold, gals.	57,883,000	55,977,000	54,595,000	55,054,000

Poultry products also increased as indicated:

	1916	1915.	1914.	Average, 1910-14.
Eggs, doz.	1,847,512,000	1,810,912,000	1,774,312,000	1,701,789,000
Fowls raised, number	566,722,000	555,494,000	544,267,000	522,021,000

WHEAT.

The two food products which reveal a marked decrease were wheat and Irish potatoes. It is evident that the public has failed to look at all the facts involved, especially in the case of wheat. The wheat crop for the current year was reported to be 640,000,000 bushels as against a five-year average of 728,000,000 bushels, and the record crop of 1915 of 1,026,000,000 bushels. Apparently, the public has compared the crop of 1916 solely with the record crop of 1915, and failed to take into account the unusually large carry over from that year into the present year of 164,000,000 bushels or more. Furthermore, its attention has been fixed on the large exports of the two years immediately following the outbreak of the war. The exports of wheat in normal times are approximately 105,000,000 bushels. The year preceding the war it was 145,000,000 bushels. In 1914-15 it was 332,000,000 bushels, dropping in 1915-16 to 243,000,000 bushels. Looking only at the crop of 640,000,000 bushels and having in mind the possibilities of export as suggested by the figure of 332,000,000 for 1914-15, the public naturally apprehended that there would be a lack of bread. Dealers and others became unduly excited. The total available supply, including both the crop and the carry over, aggregating 804,000,000 bushels—part of which, it should be said, was not suitable for milling purposes—should have been considered as well as the relatively small exports for the first six months of the current year. Up to the first of January, the exports were only 97,000,000 bushels, and they have tended to decrease partly on account of the disturbed shipping conditions since the first of January. Our normal domestic needs of wheat for human food, for seeding purposes, and for a reserve to carry over into the next year require 640,000,000 bushels. As I have stated, the total year's supply is 804,000,000 bushels. This would give us an available exportable surplus of 164,000,000 bushels. At the rate of export since the first of July, with the tendency to decline recently, we should have enough wheat in the country very nearly to supply normal needs.

CROP PROSPECTS.

I am not a prophet and can not furnish any guarantee for the future. There are certain things, however, I do know. The farmers, governed as they are by ordinary motives, in response to the present level of prices, have in certain directions shown a definite purpose to increase their acreage. Winter wheat was sown in the fall. The reports reveal that the total acreage was 40,090,000. This is nearly 900,000 more than the amount planted the preceding fall. Much of the latter, however, was winter killed, so that the planting this fall was 5,260,000 acres more than harvested last summer. Spring wheat has not been planted. In 1915 the acreage was 19,445,000 acres. The average acreage for five years is 18,800,000. It would be singular if this did not increase. But taking the average for five years and adding it to the winter wheat acreage, we have approximately 59,000,000 acres, or practically the same as the record acreage of 1915. What the yield per acre may be will depend largely on the weather conditions. The average of the six lowest yields per acre since 1894 was 12.5 bushels. This would give us 737,000,000 bushels of wheat. The average yield for five years down to the record crop year of 1915 was 14.9 bushels. This would give us 879,000,000 bushels of wheat. The average for five years including the record crop year was 15.5 bushels. This would give us 914,000,000 bushels. A yield equal to that of 1914 of 16.6 bushels would give us 979,000,000 bushels, while a yield equal to that of the record crop year would give us 1,000,000,000.

THE SITUATION IN THE SOUTH.

The Department of Agriculture has done all it could prudently do to call attention to the desirability of adjusting the supply of different sorts of agricultural commodities to the demand. As I have said, farmers are doing their own thinking and will not submit to anybody's dictation. In the South, in particular, the department has waged a persistent campaign for some years to bring about a better agriculture, to stimulate the local production of an ampler supply of foodstuffs. The South has heretofore been too dependent on corn and cotton. It has put too many of its eggs in one basket. Although it is largely agricultural, it has imported in the neighborhood of six or seven hundred million dollars' worth of foodstuffs from the West. It is clearly good economy for the South to supply her own foodstuffs and feedstuffs and it is certainly a safer practice for her to do so. The department, the agricultural colleges, and many other agencies, through the daily press, the agricultural journals, the bankers and business men, farmers' associations, bulletins and circulars, and the farm demonstration machinery reaching into many parts of the South, have urged the necessity of a better balanced agriculture and the wisdom of largely increasing foodstuffs. There has been a tendency over several years for the South to practice this agriculture and following the low price of cotton in 1914 the acreage in foodstuffs considerably increased. It remains to be seen how far the recent high price of cotton will check this tendency. It would be unfortunate if it did so.

THE MEAT SUPPLY.

A further word should be said about the tendency of the meat supply to increase. While following the outbreak of the war there was a considerable increase in exports of meats, amounting in 1916 to 1,500,000,000 pounds, the domestic production in 1916 was 3,000,000,000 pounds greater than in 1914, and the tendency is still upward. Figures recently submitted show that the number of cattle on January 1, 1917, was 1,037,000 greater than on January 1, 1916, and that the milch cows had increased in the same period 660,000. A very considerable development in live stock is taking place in the South.

NO FEDERAL DICTATORSHIP NEEDED.

The department and all the agricultural agencies in the country are giving definite and careful attention to these problems. The Federal Government through several of its departments is giving continuous consideration to the immediate problems presented and to the possibility of remedial measures. The solution will certainly not involve a Federal dictatorship, and it is highly unlikely that it will involve a dictatorship in any state or community. America does not take kindly to dictators. The difficulties, in any event, would be very nearly insuperable. We have a continent to deal with and there are difficulties of double jurisdiction. Consider, for instance, the matter of fixing a minimum price. The Federal Government could deal only with commodities passing into interstate commerce. The states might be hampered in attempting to fix price.

As I stated at the outset, there is no occasion for hysteria. Intelligent planning and constructive action, in conjunction with the operation of normal forces, are what we need and these only can bring about a satisfactory result.

The Food Manufacturer and the Law

By Thomas E. Lannen and Thomas J. Hickey
of the Chicago Bar

(Continued from March Issue.)

MINNESOTA.

FORMULA OF FOOD. No Right to Keep Secret. No man has a constitutional right to keep secret the composition of substances which he sells to the public as articles of food. State vs. Aslesen, 50 Minn. 5.

BAKING POWDER. A statute which provides that manufacturers of baking powder shall put a label on each can stating the different ingredients used in its manufacture and composition is not an infringement on private rights and is constitutional. State vs. Sherod; State vs. Horrigan; State vs, O'Grady, 80 Minn. 446.

BAKING POWDER. The act of 1889 regarding the adulteration of baking powder embraces but one subject and it is therefore constitutional within the meaning of the constitution in regard to acts embracing but one subject in their title, etc.

Alum baking powder must be marked as required by law so as to give the public full notice of what they are buying; and Secs. 1 and 2 of the statute requiring alum baking powder to be so marked are constitutional. Stolz vs. Thompson, 44 Minn. 271.

LARD. It is required that the seller of any article substituted or designed to take the place of lard shall, by label or card, inform the purchaser of the nature and ingredients of the article which he offers for sale. State vs. Aslesen, 50 Minn. 5.

LARD. Labeling. A statute requiring the sellers of lard substitute to inform the purchaser of the fact by labeling the article with a quantitative analysis of its ingredients does not deprive the seller of his property without due process of law, but is a valid exercise of the police power. State vs. Aslesen, 50 Minn. 5.

COTTOLENE. Under a law which provides that all substitutes or imitations of lard must be marked "Lard substitute" and providing that the act does not apply to cottolene when it is not manufactured in imitation of lard, and is plainly marked "cottolene," it has been held that such acts forbid the sale of cottolene manufactured to resemble lard, unless the package is marked "Lard Substitute"; and that evidence, that the defendant sold cottolene resembling lard without being marked "Lard Substitute" is sufficient to sustain a conviction. State vs. Hansen (Minn.), 54 L. R. A. 468.

ADULTERATED MILK. A statute prohibiting the sale of cream that contains less than 20 per cent of milk fats is a valid exercise of the police power. State vs. Crescent Creamery Co., 83 Minn. 284.

MILK LICENSE. The laws of 1895 which authorize a city to provide for the regulation of the sale of milk and licenses therefor within its limits, give a city power to require that the applicant for a license consent that the dairy herd from which he obtains milk may be inspected by the health commissioner, although the cows are outside of the city limits.

An ordinance providing that before the license is granted the animals from which the applicant obtains his milk shall be subject to the tuberculin test is not unreasonable. State vs. Nelson, 66 Minn. 166.

OLEOMARGARINE. The law of 1885, c. 149, par. 4, is constitutional and within the police power of the state and the same is good as to its title within the meaning of Sec. 27, Art. 4, of the constitution. Butler vs. Chambers, 36 Minn. 69.

A statute intended to restrain or suppress the manufacture and sale of oleomargarine and similar compositions is a legitimate exercise of the police power of the state. Butler vs. Chambers, 36 Minn. 69.

PUBLIC MARKET. An ordinance which requires that all dealers in order to sell within the city limits in any other place than in the public market must have a license is valid. State vs. McMahon, 62 Minn. 110.

MISSOURI.

UNWHOLESOME FOOD. The wilful exposure of unwholesome provision for sale in a public open market is a punishable offense. State vs. Snyder, 44 Mo. App. 429.

UNWHOLESOME PROVISIONS EXPOSURE. It is a criminal offense to expose unwholesome provisions for sale as food unless the fact that they are unwholesome is not known to the person who so exposes them. State vs. Snyder, 44 Mo. App. 429.

DECEITFUL NATURE OF ARTICLE. It is immaterial whether the article can be easily detected or not, or whether it is apt to deceive. State vs. Addington, 77 Mo. 110.

***ALUM BAKING POWDER. Constitutionality.** An act which makes it "unlawful for any person or corporation doing business in this state, to manufacture, sell or offer to sell any article, compound," etc., "for the purpose of being used in the preparation of food in which * * * there is any arsenic, calomel, bismuth, ammonia or alum" is not unconstitutional And the fact that the baking powder which it suppresses has been long in public use and there is an open question as to its injuriousness to public health makes no difference. State vs. Layton, 160 Mo. 474.

BAKING POWDERS. The act of May 11th, 1899, regarding the sale of alum baking powder is within the police power and it is held that alum baking powder is not so universally and widely recognized as wholesome and innocuous that a court will take judicial notice of the fact that it is so wholesome and innocuous. State vs. Lyton, 160 Mo. 474.

LIQUORS. The revised statute of 1899, Sec. 3887, makes the adulteration of liquor a felony, and the revised statute of 1899, Sec. 3890, makes it unlawful to sell liquor without taking an oath and giving a bond not to adulterate it. Held "that it is an offense to either sell liquor without a bond or sell adulterated liquor under this act." State vs. Crowley, 37 Mo. 399.

LIQUORS. Under a statute allowing druggists and physicians to mix and adulterate liquors for medical or mechanical purposes it is necessary that they comply with the statute that requires that persons selling alcoholic liquors or dealing in them must take an oath against adulteration. State vs. Ferguson, 72 Mo. 297.

LIQUORS. The law which prohiits the manufacture of beer or malt liquors from "any substance, material, or chemical, other than pure hops, or pure extract of hops, or pure barley. malt or wholesome yeast, or rice" is held to be accurate enough even though it does not name water as a proper material to be used. State vs. Bixman, 162 Mo. 1.

MILK. It is a valid exercise of the police power to prohibit the sale of milk containing less than 12 per cent of milk solids. Kansas City vs. Cook, 38 Mo. App. 660.

IMITATION BUTTER. Sec. 2, Laws of 1895, p. 26, prohibits the manufacture or sale of imitation butter. It is immaterial in a prosecution under the act that another section of the same act providing for the punishment of any subsequent offense as far as the guilty defendant is concerned is unconstitutional. The provisions of the act with regard to the first and subsequent offenses are not inseparable. A person convicted of selling substitutes for butter colored yellow under Section 2 can not avail himself of a plea that Sec. 5 regarding imitation butter and requiring it be marked in a manner therein prescribed is unconstitutional. State vs. Bockstruck, 136 Mo. 335.

It is within the police power of the state to prohibit the manufacture and sale of imitation butter. Id.

Sec. 8, Laws of 1895, p. 26, regarding imitation butter, does not contravene Sec. 53 of Art. 4 of the constitution regarding the "changing of rules of evidence in any judicial proceeding or inquiry before courts" because it provides that a person having in his possession or control any imitation butter shall be held to have it so with intent to commit a public offense. Id.

Sec. 2 of the Act is held to embrace Sec. 5, which requires imitation butter to be marked in a certain manner therein prescribed. Id.

IMITATION BUTTER. Validity of Statute. The unconstitutionality of one provision of an Act that fines imposed thereby shall be paid into the state treasury instead of the school fund does not render unconstitutional the provision imposing a fine for the manufacture, sale, keeping for sale, and fraudulent use of imitation butter. State vs. Newell, 140 Mo. 282.

OLEOMARGARINE STATUTES. A statute which absolutely prohibits the manufacture or sale or any compound designed as a substitute for butter, however wholesome, valuable, or cheaper, and however openly and fairly the character of the substance may be avowed and published, is constitutional. State vs. Addington, 77 Mo. 110, 12 Mo. App. 217.

OLEOMARGARINE. It is within the police power of the state to prohibit the sale of any imitation of butter or cheese. State vs. Addington, 77 Mo. 110; 12 Mo. App. 214.

OLEOMARGARINE. When the statute prescribes that nothing therein shall be construed to prohibit the use of salt rennet, or harmless coloring matter for coloring substitutes for butter manufactured for sale or export outside the state, an information which charges the defendant with selling a combination of animal fat with butter which resembles genuine butter, and is colored yellow by combining it with some foreign coloring matter, need not negative the exception in the statute. State vs. Stocker, 80 Mo. App. 354.

Under the statute of March 24, 1881, regarding the manufacture and sale of oleaginous substances for food it is held that an intention to deceive is not an essential element of the offense, but that the act prohibits the manufacture or sale of the articles mentioned without regard to intention to commit the offense. State vs. Addington, 77 Mo. 110.

NEBRASKA.

DEPUTY FOOD COMMISSIONER. Under the laws of this state which provide that the Governor shall be the Food Commissioner and shall appoint a Deputy Food Commissioner, who shall make an annual report to the Governor and give a bond for the faithful performance of his duties as such Deputy Food Commissioner, it is held that such Deputy is a state officer, and not a mere employe of the state. State vs. Cornell, 60 Neb. 276.

LIQUORS. Under a statute forbidding the sale or gift of adulterated liquors an applicant who has sold adulterated liquor within a year is not entitled to a license. Livingston vs. Corey, 33 Neb. 366.

POWER TO MAKE REGULATIONS. Cr. Code, Sec. 245m, et seq., forbidding the sale or keeping for sale of imitation butter, colored so as to resemble butter made from pure milk or cream, and the other regulations imposed by the act, is a valid exercise of the police power; the legislature being authorized to provide regulations for the protection of the public health, and to enact suitable penalties for their violation and to prevent fraud. Beha vs. State, 93 N. W. 155.

STATUTORY AND MUNICIPAL REGULATIONS. Comp. St. 1901, c. 33, entitled "Food Commission," and regulating imitation butter and imitation cheese, and fixing fees for permits, does not, by implication, repeal Session Laws 1895, c. 78, being an act concerning imitation of butter and imitation of cheese, or any part thereof, said last mentioned act being incorporated in Comp. St. 1901 as section 245m et seq. of the Criminal Code. Beha vs. State, 93 N. W. 155.

NEW HAMPSHIRE.

ADULTERATION. The legislature having power to fix a standard, it must judge whether or not milk below that standard is wholesome, so that the court cannot take judicial notice whether milk, below that standard, is or is not dangerous to the public health. State vs. Campbell, 64 N. H. 404.

OBJECT. Statutes which prevent the sale of adulterated provisions are made in order to protect the public health. 64 N. H. 549, State vs. Marshall.

MILK. In a prosecution under the laws regulating the sale and inspection of milk, evidence that the defendant's cows were properly fed, but which evidence is offered for the purpose of discrediting the analysis of the milk put in by the state, is properly rejected. State vs. Campbell, 64 N. H. 402.

The state may authorize the analysis of milk claimed to be adulterated, and allow the giving of evidence of such an analysis even though in the meantime the milk has been destroyed.

The legislature may fix an arbitrary standard below which milk cannot fall; and evidence that the milk is below that standard when given by the cows is not a defense. State vs. Campbell, 64 N. H. 402.

OLEOMARGARINE. Notice. It is a legitimate exercise of the police power of a state to require that oleomargarine shall not be furnished to a guest without his knowledge, as it is an Act for the protection of the public health and to prevent fraud and deception on the same in buying an article of general consumption. State vs. Ball, 70 N. H. 40.

OLEOMARGARINE. It is no defense to the action to show that defendant who furnished oleomargarine to a guest in a hotel without first notifying such guest that it was oleomargarine did not know or have reason to know that it was oleomargarine. State vs. Ryan, 70 N. H. 196.

NEW JERSEY.

MILK. It is not necessary to sustain a prosecution under an act to prevent the adulteration of milk to show the particular manner in which an analysis of the milk was conducted; but it is necessary to allege and prove that the milk consisted of more than 88 per cent of watery fluids and less than 12 per cent of milk solids. Vandegrift vs. Niehla (N. J. 1901), 49 A. 16.

It is not necessary to show that the defendant knew that the milk was below the legal standard. The legislature has the power to pass laws, the violation of which may be punished without regard to motive or knowledge on the part of the violator; and therefor courts cannot require proof of such knowledge. Id.

The official character of a chemist who made the analysis of a sample may be prima facie established by his testimony that he was duly appointed for the purpose of making analysis. Id.

OLEOMARGARINE. In an indictment under an act forbidding the sale of oleomargarine or other imitations of butter, unless express notice be given to purchaser, it is not necessary to show criminal intent. State vs. Newton, 50 N. J. L. 549.

OLEOMARGARINE. The Supplemental Act of March 25, 1895, regarding oleomargarine, does not abrogate the provisions of the original Act. It only applies where the substance is manufactured and sold artificially colored in imitation of yellow butter; while the presence of such coloring is not contemplated by the original Act. McGuire vs. Doscher, 65 N. J. L. 139.

NEW YORK.

ADULTERATION is the corruption by mixture with some foreign substance or with what is less valuable. People vs. West, 44 Hun. (N. Y.) 162.

BUTTER. Held that a grocery man who sold an article representing it to be butter, which contained a fourth part of foreign butter, is guilty of a violation of the act which prohibits the sale of any substance not butter as butter. People vs. Mahaney, 41 Hun. (N. Y.) 26.

UNWHOLESOME FOOD. It is just as much of an offense to sell unwholesome beef to a wholesale merchant as it is to sell it directly to the consumer. People vs. Parker, 38 N. Y. 35.

UNWHOLESOME MEAT. It is not necessary to show an indictment for selling unwholesome meat that sickness resulted from eating it. Dealers have no right to continue selling unwholesome food until someone is made sick by its use. Goodrich vs. People, 19 N. Y. 577.

COFFEE. COLORING. Under the law of 1893 the sale of colored coffee is not illegal unless the process of coloring has injured the coffee, or the coloring conceals some damage to it, or it makes the coffee appear better and of a greater value than it really is. Crossman vs. Lurman, 54 N. Y. Supp. 72.

LEMONADE. A mixture known as "Eiffel Tower Lemonade" was found to consist of 48 per cent sugar, 35 per cent tartaric acid, 12 per cent citric acid, and 5 per cent oil of lemon. There were pictures of lemons posted on each box and also a statement that 38,000,000 lemons had been used the last year in making "Eiffel Tower Lemonade." The statement also went on to say that the "Eiffel Tower Lemonade" was manufactured in the orchard where the lemons were grown by concentrating the lemons in said orchard. In the trial the defendant testified that 52,000,000 lemons had been used in the last year in making "Eiffel Tower Lemonade" and that the oil of lemon used was made from the lemon rind. It was held, that under the law against the sale of adulterated beverages and the sale of an inferior substance under the name of or as an imitation of another substance of greater value, a verdict finding the defendant guilty of selling an inferior article as lemonade should be sustained, as tartaric acid is cheaper considerably than lemon juice. People vs. Park, 69 N. Y. S. 1120; 60 App. Div. 255.

CANNED PEAS. Under an indictment for selling canned peas containing copper it is necessary in order to sustain a conviction to show that the peas sold contained poison, and that the copper contained in the peas was poison. People vs. Bischoff, 14 N. Y. State Rep. 581.

TEA. The possession of adulterated tea for the purpose of selling the same to the general public constitutes a nuisance. Health Department vs. Purdon, 99 N. Y. 237.

VINEGAR. The act forbidding the manufacture or sale of vinegar containing artificial matters is constitutional as a police regulation. People vs. Girard, 145 N. Y. 105.

VINEGAR. Analysis. It is held that in an action under the laws of 1893 to recover a penalty for selling adulterated cider vinegar the evidence of a chemist to whom a sample has been submitted that the cider vinegar contained less than two per cent vinegar solids is insufficient. In order to recover the mode of analysis must be shown. 51 N. Y. Supp. 824. People vs. Braested.

VINEGAR. Instructions. Laws of 1893, c. 338, par. 10, amended by laws of 1890, c. 308. A party guilty of an illegal sale of adulterated vinegar under the laws against the sale thereof, which provide among other things that on an action in the Supreme Court for the violation of any of the provisions of the said laws an application may be made to the "court or any justice thereof that an injunction issue to restrain the defendant from further violating said act"; could not be enjoined by the county court by an injunction, in such an action in the Supreme Court. People vs. Hintholz, 74 N. Y. St. 241.

If the affidavit for an injunction against the sale of adulterated vinegar do not show the statutory elements of the offense the injunction should be vacated. Id.

MILK. Board of Health. Under the law which authorizes local boards of health to make such regulations for the general health as they may deem necessary a requirement that vendors of milk in a city shall register each year before receiving a license to sell milk is held to be valid. City of Gloversville vs. Enos, 72 N. Y. St. 398.

An honorably discharged soldier, although authorized to sell goods and procure a license without cost, must register before receiving a license to vend milk. Id.

MILK. Under an indictment for selling adulterated milk it is not necessary to show criminal intent. Guilty knowledge is not an essential element of the offense. People vs. Schaeffer, 41 Hun. (N. Y.) 23; People vs. Cipperly, 101 N. Y. 634; People vs. Kibler, 106 N. Y. 321; People vs. Eddy, 12 N. Y. Supp. 628.

ADULTERATED MILK. Indictment. It is not necessary to allege in an indictment for selling adulterated milk to a cheese factory that the factory was a "full cream" factory, under a statute that provides that no person shall supply to "any cheese factory, any impure or adulterated milk, or milk from which any of the cream has been taken, except pure milk to skim cheese factories." People vs. Spees, 46 N. Y. Supp. 995.

MILK. To sustain a conviction under the laws of 1862 it is not sufficient to charge that the defendant had adulterated milk, but it must be proved that the milk was adulterated for the purpose of selling or exchanging it. People vs. Faurback, 5 Park Cr. Rep. (N. Y.) 311.

MILK. The keeping and offering for sale of adulterated milk is a violation of the sanitary code. People vs. Justices, 7 Hun. (N. Y.) 214.

To bring into the city impure and adulterated milk for sale is an offense. Polinsky vs. People, 73 N. Y. 65.

SAMPLES. Under an indictment for selling adulterated milk to a cheese factory evidence is admissible to show that the milk has not been watered or skimmed, and that a sample drawn from the lower part of the can is not a fair test of the quality of the milk. People vs. Hodnett, 22 N. Y. Supp. 809.

ANALYSIS. Evidence of a test of milk which is charged to have been adulterated, even though made nearly a year after the sale of milk, is admissible against the person charged with the adulteration. Stearns vs. Ingraham, 1 Thomp. & C. (N. Y.) 218.

MILK. Evidence. Evidence is admissible, upon a trial for selling adulterated milk, which tends to show that there was no physical interference with the milk after it was drawn from the animal. People vs. Sailsbury, 37 N. Y. Supp. 420.

MILK. In a case where it is shown that the milk had stood in a can over night and tasted bad when sample was taken and that a sample was taken from it and put into two bottles after it had been stirred up, one taken by the state and the other bottle by the defendant, the state sample showing a percentage of 2.61 butter fats by a chemical test, and the defendant's sample showing a percentage of 3.22 butter fats by the Babcock test, it is held that such facts will support a verdict for the defendant where the instruction was that if the milk tested by the state was a fair sample of all the milk in the can then defendant had sold adulterated milk and must be fined. People vs. Rickard, 63 N. Y. S. 165.

IMPURE MILK. Mere possession of impure milk in a milk wagon while milk is not being delivered or sold to customers is not a violation of the laws of 1893. People vs. Kelline, 50 N. Y. Supp. 653.

SKIMMED MILK. Where evidence does not show whether the milk taken for analysis was taken from a vessel containing skim milk or from one containing pure milk a conviction cannot be sustained. People vs. Thompson, 14 N. Y. Supp. 819.

A law which provides that no person or persons shall sell, buy, or bring to be manufactured to any butter or cheese factory, any milk diluted with water, or any unclean, impure, unhealthy, adulterated, or unwholesome milk, does not make it criminal for the owner of a cheese factory supplied with milk exclusively by himself to furnish milk diluted with water. People vs. West, 106 N. Y. 293.

NAME ON MILK CANS. It is unlawful for any person without the consent of the owner to use or to sell any milk cans bearing the name or initials of the owner. Bell vs. Gaynor, 36 N. Y. Supp. 122.

CREAM. Where the defendant was a dealer in milk and cream and samples were taken from a man in his employ at an early hour in the morning while said employe was driving a wagon through the street, a number of which corresponded with defendant's license to sell milk, it was held that the defendant was offering the cream for sale under the evidence submitted. People vs. Hills, 72 N. Y. St. 340, 64 App. Div. 584.

COWS. Running Sores. It is a matter of common knowledge that a cow that has a running sore is unfit for food. Goodrich vs. People, 19 N. Y. 594.

OLEOMARGARINE. Under the laws of 1893, c. 338, par. 36, amended by the laws of 1897, c. 768, prohibiting the sale of oleomargarine as butter, the inspector testified that he examined defendants' stock and that the defendant said he had been selling a substance which had been found on analysis to be oleomargarine for butter, and that it was sold as butter. Held, that the jury should be instructed that if they did not believe the defendant made the said admission they should not find him guilty on that evidence alone. People vs. Bremer, 74 N. Y. St. 570.

It is not material who should determine the amount of the forfeiture, but the minimum fine can be at least recovered. Id.

OLEOMARGARINE LAWS. The state has power to regulate the sale. People vs. Arensberg, 103 N. Y. 388.

OLEOMARGARINE. The intention to sell as butter articles manufactured by mixing animal or vegetable oils with natural milk or cream must be shown in order to convict one of a violation of the statute prohibiting such sale. People vs. Dold, 63 Hun. (N. Y.) 583.

OLEAGINOUS SUBSTANCES. It is unlawful to manufacture or sell products made from vegetable oils or animal fats or oils, which are designed to take the place of butter or cheese. It is not necessary to prove the act charged beyond a reasonable doubt; preponderance of evidence is sufficient. People vs. Briggs, 114 N. Y. 56.

BUTTER. Intent and Color. In a prosecution under a law preventing the imitation of the color of natural butter, the intent need not be shown, because it is immaterial. People vs. Hellman, 68 N. Y. S. 66; 15 N. Y. Cr. R. 394.

IMITATION BUTTER. Restaurant keepers may be prosecuted under an act which provides that substances in imitation of natural butter shall not be served to customers, if they use for cooking purposes imitations of natural butter manufactured outside of the state. 38 N. Y. Supp. 635.

OLEOMARGARINE. Judicial Notice. Courts will not take judicial notice of the natural appearance of oleomargarine. People vs. Meyer, 60 N. Y. St. 415.

PRESERVATIVES. It is held that a law prohibiting the sale of butter containing any preservatives except salt, or of cheese containing any preservatives except spirituous liquors, or of condensed milk containing any preservatives except sugar; and prohibiting the sale of preservatives to be so used, is void as being in restraint of a person's liberty to sell articles of commerce. People vs. Biesecker, 68 N. Y. S. 1067, 58 App. Div. 391.

The law prohibiting the sale of butter or dairy products containing preservatives, except in certain cases, is not a mere health regulation. Id.

RECOVERY OF PENALTY. Action. Under par. 37 of the Agriculture law the penalty should be recovered by a civil and not by a criminal suit. People vs. Bremer, 74 N. Y. St. 570, 69 App. Div. 14.

SLAUGHTER HOUSES. A statute providing that a repeal of a statute shall not affect a penalty arising before the repeal takes effect is applicable to future legislation, and a defendant liable to a penalty under the laws of 1898 regarding the slaughter of calves not in a condition for food is held liable for the penalty, even though the statute under which he is prosecuted was repealed in 1901, before the prosecution was commenced. People vs. Jackson, 73 N. Y. St. 461.

Statutory and Municipal Regulations. Laws 1893, s. 338, as amended by Laws 1900, c. 101, provides that no person shall sell or exchange, or offer or expose for sale or exchange, any unclean, impure, unhealthy, adulterated or unwholesome milk, and declares that if the milk is delivered by the "producer" for manufacture, sale or shipment, or from a milk vendor who "produces" the milk which he sells, and it is designed to prosecute such producer, a sample shall be taken from the "milk of the herd of cows" from which the milk claimed to be adulterated was drawn. Held, That the statute was not unconstitutional in that it required a test of the milk of the herd to be made when it was sought to prosecute the producer, while it authorized a conviction of the milk vendor on samples taken from the milk sold by him. People vs. Laesser, 79 N. Y. S. 470.

VIOLATION OF REGULATIONS. New York City Sanitary Code, §63, providing that no adulterated milk "shall" be brought into, held, kept, or offered for sale at any place in the city, does not prohibit the mere possession thereof. People vs. Timmerman, 80 N. Y. S. 285.

PENALTIES AND ACTION THEREFOR. A complaint to recover penalties for violation of the agricultural law, alleging that plaintiff does not know, and for that reason cannot state, the precise number of barrels contained in each sale and purchase, of vinegar, but that plaintiff is entitled to recover a penalty of $100 for each separate purchase of vinegar which was sold as cider vinegar, but was not such, is objectionable, as, by implication, alleging in a single count an infinite number of sales, for any one of which plaintiff has a cause of action. People vs. Sheriff, 79 N. Y. S. 783.

In an action to recover a penalty prescribed by Laws 1893, c. 338, §37, for selling adulterated milk, which defendant had purchased from the producer, evidence of the defendant and his wife that they had not tampered with the milk was incompetent, where the fairness of the samples shown to be adulterated or the analysis was not impugned. People vs. Laesser, 79 N. Y. S. 470.

Laws 1893, c. 338, as amended by Laws 1900, c. 101, prohibits the sale of adulterated or unwholesome milk, and provides for the taking of samples by state inspectors for analysis. The statute also requires that when the milk is delivered by the producer for manufacture, sale or shipment, or from a milk vendor who produces the milk which he sells, and it is designed to prosecute such producer, a sample shall be taken from the mixed milk of the herd of cows from which the milk claimed to have been adulterated was drawn. Held, That since, in the prosecution of a milk vendor not a producer of the milk sold, no herd sample was required to be taken, evidence that no herd sample was taken from the producer of the milk sold by the vendor was incompetent. People vs. Laesser, 79 N. Y. S. 470.

In an action to recover the penalty prescribed by Laws 1893, c. 338, §37, for the sale of adulterated milk, the question of the vendor's intent is immaterial. People vs. Laesser, 79 N. Y. S. 470.

A milk vendor in a city had in his wagon two cans of milk, one a 32-gallon can and the other a 10-quart can, which contained about six quarts of milk, from which he was delivering milk to customers at the time he was approached by state milk inspectors, who thoroughly stirred the milk in the small can, and took therefrom two samples, one of which was delivered to the vendor and the other sent to the state chemist for analysis. Held, That evidence of samples as so taken were adulterated authorized a recovery of the penalty prescribed by Laws 1893, c. 338, as amended by Laws 1900, c. 101, providing that no person shall sell or expose for sale or exchange any adulterated milk, etc. People vs. Laesser, 79 N. Y. S. 470.

In an action to recover a penalty provided by Laws 1893, c. 338, §§ 22, 37, as amended by Laws 1900, c. 101, for the sale of adulterated milk, where the evidence of the state inspectors that the milk from which the samples were taken was thoroughly stirred, was not contradicted, and there was no other proof tending to impeach the fairness of the samples or the correctness of the analysis, the evidence did not authorize a submission of the fairness of the samples to the jury. People vs. Laesser, 79 N. Y. S. 470.

Defendants manufactured and sold as cider vinegar a product extracted from pores, skins and small pieces of apples, all of which had been evaporated and soaked in river water; coloring matter being added to give it the appearance of cider vinegar. Laws 1893, c. 338, §50, as amended by Laws 1901, c. 308, provides that vinegar which contains any artificial coloring matter shall be deemed adulterdated. §51 provides that no person shall manufacture, keep for sale, or offer for sale any adulterated vinegar, or any vinegar or product in imitation of cider vinegar which is not cider vinegar. §52 prohibits the marking of any package as cider vinegar which is not cider vinegar. §53 prescribes a penalty for each violation of such provisions. Held, That such product was not vinegar, but a simulated and adulterated product, manufactured, marked and sold as cider vinegar. People vs. N. Fruit Co., 66 N. E. 1114.

Agricultural Laws, §§ 22, 23 (Laws 1893, p. 661, c. 338), prohibit the sale of impure and adulterated milk. §37, p. 666, provides penalties for each violation, and declares the sale of each one of several packages to constitute a separate offense. Held, That a sale of several cans of impure and adulterated milk at one time and place, and to one person, as a single transaction, should be alleged as merely one cause of action. People vs. Buell, 83 N. Y. S. 143.

The complaint in an action for a violation of the agricultural law alleged that the defendant, "on or about the 15th day of October, 1901, at Miller's Station, in the County of Delaware, N. Y., did expose for sale, offer for sale, and sell, a quantity of impure and adulterated milk, to wit, five cans of milk." Held, That it alleged but one sale of one quantity of milk, consisting of five packages. People vs. Buell, 83 N. Y. S. 143.

NORTH CAROLINA.

UNWHOLESOME FOOD. In this state it is held to be a misdemeanor for a person knowingly to sell unwholesome food. State vs. Norton, 2 Ired. (N. Car.) 40; State vs. Smith, 3 Hawks (N. Car.) 378.

OHIO.

FOOD. Prosecution. It is not necessary to show in a prosecution for selling adulterated food condemned by the pure food laws that the article sold contains a sufficient amount of injurious substance to be detrimental to health if the substance is such that its continuous use in the food would have such effect. State vs. Hutchinson, 55 Ohio State, 573.

DELIVERY OF ADULTERATED GOODS. The statute is not violated until the goods are paid for, even if the seller intends to sell the goods and they are delivered. Hieder vs. State (C. P.), 40 Ohio Dec. 227.

ADULTERATED FOOD. It is held in this state that the manager of a mercantile corporation can be fined under the statute prohibiting the sale of adulterated food or drugs, for the sale of an adulterated article by the agent of a corporation if the sale was within the scope of his authority. Meyer vs. State, 54 Ohio St. 342.

The Act of 1884 prohibits the sale of any article of food or drug which is adulterated and it is no defense to a prosecution under it to prove that the defendant was ignorant of the adulteration of the article sold or offered for sale. State vs. Kelly, 54 Ohio St. 166.

POWER OF DAIRY AND FOOD COMMISSIONERS. Where they are authorized to enforce each and every law against the adulteration of food they have power to point out such matters as may be necessary to inform dealers that certain vinegar was manufactured and sold contrary to and in violation of the law, and the persons dealing therein shall be punished according to the law. Williams vs. McNeal, 7 Ohio Cir. Ct. Rep. 280.

DAIRY AND FOOD COMMISSIONERS—Power. In order to employ a counsel and fix their fees dairy and food commissioners must upon the recommendation of the Attorney General receive written consent from the Governor and Auditor of the State. State, Renner vs. Guilbert, 58 Ohio State 637.

FOOD INSPECTOR. A food inspector cannot compel by injunction a manufacturer to sell an article of food or drink to make an analysis under the statute, the remedy is by prosecution under the succeeding section. State vs. Capital City Dairy Co., 62 Ohio St. 123.

INTENTION OF LEGISLATURE. The legislature in passing laws prohibiting the sale of unsound and diseased meat and provisions in tended them as a means of protecting the public health. 39 Ohio St. 236.

ADULTERATION, AFFIDAVIT. An affidavit charging the adulteration of food and drugs need not charge that the adulterated article was sold to be used as food. State vs. Kelly, 54 Ohio St. 166.

KNOWLEDGE NOT ESSENTIAL. Bismann vs. State, 9 Ohio C. C. 714.

BUTTER. It is held to be within the power of the legislature to enact laws prohibiting the sale of any substance having the semblance of butter or cheese which is not made wholly from pure milk or cream, unless each package shall have plainly stamped upon it the name of every article used in the composition of such substance, and that it is not a defense to show that they were patented under an indictment for selling impure provisions. Palmer vs. State, 39 Ohio St. 236.

CHICORY. It is an offense against the pure food laws of the state to offer liquid chicory and coffee as "liquid coffee" as an article of food. State vs. Dreher, 55 Ohio St. 115.

COMPOUNDS. Cocoa. The manufacturer of a simple article of food from a natural product by abstraction which removes a valuable part does not make it a mixture or compound within the exception in the statute of this state relating to the adulteration of foods, of mixtures, or of compounds, recognized as ordinary articles of food. Rose vs. State, 1 Ohio C. D. 72.

Held that the extraction of the greater part of the oil from the cocoa bean, and selling the product as breakfast cocoa, is not an adulteration. Rose vs. State, 11 Ohio C. C. 87.

DAIRY PRODUCTS. The act regulating the sale of dairy products and to prevent fraud on the public and to preserve the health of the same is held to be constitutional. Holtgrieve vs. State, 7 Ohio N. P. 389.

MILK. An act prohibiting adulteration of milk and requiring that each manufacturer shall post a copy of it in the receiving room of his factory is directory only and a failure to do so will not excuse one guilty of selling adulterated milk to the factory contrary to the provisions of the act. Bainbridge vs. State, 30 Ohio St. 265.

MILK. On prosecution for knowingly delivering skimmed milk to a cheese factory, with intent to defraud, evidence, tending to show guilty knowledge, of similar transactions of the same kind other than that relied upon for conviction is admissible. Bainbridge vs. State, 30 Ohio St. 265.

DEMAND OF SAMPLES. An affidavit stating that a person refused to furnish to persons interested a sample of food for analysis that he offered for sale, is bad because it does not state that the sample was demanded. Margolins vs. State, 1 Ohio N. P. 264.

DUPLICATE SAMPLES. It is held that the defendant is not entitled to a sample of the article in possession of the state on which it bases its prosecution, unless the defendant can show that he cannot make a defense as to the ingredients of said article unless he obtains said sample. State vs. Breckenridge, 7 Ohio N. P., 663.

ANALYSIS OF DUPLICATE SAMPLES. It is discretionary with the Court to permit an expert to examine the articles on behalf of the defendant.

When an analysis of an article in possession of the state in a prosecution is made on behalf of defendant, such analysis must be made by an expert appointed by the court, and the expert who made the analysis for the state must be present thereat.

The court may appoint any expert it chooses, and need not appoint one suggested by the defendant. State vs. Breckenridge, 7 Ohio N. P. 663.

MASTER'S LIABILITY. MILK ADULTERATION. A master is liable for the act of his servant who, when sent with milk to a cheese factory, puts foul water into it, for all the damages sustained by the owner of the factory, who receives and pays for the milk. Stranahan Bros. vs. Coith, 55 Ohio St. 398.

PRINCIPAL'S LIABILITY. A general manager who sells adulterated food through traveling salesmen may be prosecuted in any county where such a sale is made. Bissmann vs. State, 9 Ohio C. C. 714.

LIQUORS. If beer contains salicylic acid without a label on the package to the effect that it contains such substance, and the same is found to be poisonous or deleterious to health by its constant use, it is an offense against the pure food laws under the definition of "Adulteration."

It is held that whisky is a drug under the adulteration clause.

It is an offense to adulterate whiskey under the laws providing against the adulteration of foods and drugs, even though it be sold as a beverage or commodity. State vs. Hutchinson, 56 Ohio 82; 55 Ohio St. 573.

WHISKEY. On a prosecution for the sale of whiskey, not up to the standard of quality and purity required, it is immaterial that the sale is made by the saloon keeper and for use as a beverage. State vs. Hutchinson, 56 Ohio St. 82.

MUSTARD. A justice has discretionary power in a prosecution for the sale of adulterated mustard to request the State to permit an analysis of some of the mustard to be made that the case may be better decided, unless it appears that the article would be impaired or destroyed for evidential purposes on the part of the state if the order were complied with. The analysis should be made by an expert appointed by the justice, in the presence of the plaintiff's representative and a state expert, and an officer of the court to direct the same. Breckenridge vs. State (C. P.), 3 Ohio N. P. 313, 4 Ohio Dec. 289.

WINE. To sustain a conviction for selling adulterated wine it is not necessary to prove that the seller knew the wine to be adulterated. Altschul vs. State, 8 Ohio Cir. Ct. Rep. 214.

WINE. It is not necessary to show that acid in wine is injurious to health in order to sustain a prosecution under the law against the adulteration of food and drinks, and the putting of such acid in the wine is an adulteration whether the acid be injurious to health or otherwise. State vs. Haynes, 7 Ohio N. P. 624.

WINE. Held that the agent of a principal who is a nonresident is liable under the statute for the sale of adulterated wine if he only sends an order to the principal to ship the goods to the buyer. Meyer vs. State, 54 Ohio St. 242.

VINEGAR. Held that it is against the statute prohibiting the sale or having in possession with intent to sell any vinegar containing artificial coloring matter, to color it in the process of manufacturing it by passing the low wine or alcohol through roasted malt, giving it a malt flavor and smell, and that the same constitutes artificial coloring matter. Weller vs. State (C. C.), 3 Ohio Dec. 695.

VINEGAR. It comes within the police power to prohibit the adulteration and artificial coloring of vinegar. Weller vs. State, 85 Ohio L 259.

OLEOMARGARINE LAWS. It is within the scope of the legislature to regulate the sale. Bainbridge vs. State, 30 Ohio St. 264.

OLEOMARGARINE. DEFINITION. The definition of Oleomargarine as any substance not pure butter of not less than 80 per cent of butter fats, which is made as a substitute for, in imitation of, or to be used as butter, does not cover an article of pure butter made from the cream and milk of cows, without foreign substance of any kind, but which according to a chemical analysis contains less than 80 per cent of butter fat. Ransick vs. State, 15 Ohio C. C. 371.

OLEOMARGARINE. Acts which prevent the manufacture or sale of any article in imitation of butter or cheese do not violate the rights of patentees. Palmer vs. State, 39 Ohio St. 236; 48 Amer. Rep. 429.

OLEOMARGARINE. A law against the manufacture and sale of oleomargarine in this state which contains any coloring matter does not deprive a corporation engaged in its manufacture of its property without due process of law, even though the statute authorizes coloring matter to be used in the butter. State vs. Capital City Dairy Co., 62 Ohio St. 350, 22 S. Ct. 120.

COLORING MATTER. A justice of the peace has jurisdiction over the offense of introducing coloring matter into oleomargarine. State vs. Ruedy, 57 Ohio St. 24.

OLEOMARGARINE AND BUTTER. Butter made from pure milk, though it be deficient in butter fats, is not intended to come under the provisions of the Act of May 16, 1894, regarding oleomargarine, and defining it to be a substance not pure butter and containing less than 80 per cent butter fats. State vs. Ransick, 62 Ohio St. 283.

OLEOMARGARINE. A juror is entitled to his fees as provided by the Rev. Statutes, Sec. 5182, to be paid by the treasurer on warrant of the auditor in a prosecution for a violation of the law against selling oleomargarine without displaying a placard that it is kept for sale. State, Ward, vs. Akins, 18 Ohio C. C. 19.

STATUTORY AND MUNICIPAL REGULATIONS. An ordinance providing that no person shall sell milk in a city without a permit from its acting board of health and authorizing examination and inspection of milk sold in the city, the places where produced, and the cattle producing it, and prescribing regulation regarding the health of employes, etc., is a health ordinance exclusively, and within Rev. St. §1692, par 24, providing for boards of health. Walton vs. City of Toledo, 23 Ohio Cr. Ct. R. 547.

Rev. St. §2669, providing that nothing therein contained shall be construed to limit the powers conferred on cities under §1692, among which are those relating to boards of health, renders the former section inapplicable to an ordinance providing for sale of pure milk, and imposing a fee of one dollar on each wagon, whether or not such fee be denominated a license. Walton vs. City of Toledo, 23 Ohio Cr. Ct. R. 547.

An ordinance requiring inspection of milk, milch cows, stables where kept, etc., for the purpose of securing the sale of pure milk, is not burdensome to the producer, and is not inimical to any provision of the constitution. Walton vs. City of Toledo, 23 Ohio Cr. Ct. R. 547.

PURITY AND QUALITY. The mere fact that a fee of one dollar is charged, and a tag attached to each wagon used in selling milk in a city, before a permit to sell therein will be granted, under an ordinance to compel the sale of pure milk and requiring inspection thereof, does not constitute the permit a license, in violation of Rev. St. §2669, exempting vendors of their own products from payment of a license. Walton vs. City of Toledo, 23 Ohio Cr. Ct. R. 547.

OREGON.

OLEOMARGARINE. An act which prohibits the sale of oleomargarine without having it stamped is valid. State vs. Dunbar, 13 Or. 591.

OLEOMARGARINE. An intent to sell, in the absence of rebutting evidence, may be inferred from the fact of exposing oleomargarine not labeled as such upon shelves or counters with other pure butter. State vs. Dunbar, 13 Oregon 591.

PENNSYLVANIA.

ADULTERATION is "to corrupt, debase, or make impure by the admixture of baser materials." Com. vs. Hough, 1 Pa. Dist. Rep. 51.

IMPURE FOOD AND DRINK. Under the law which makes it criminal to sell impure food or drink, an indictment cannot be had for selling milk to which water is added. Com. vs. Darlington, 9 Pa. Dist. R. 700.

It is not a defense that the defendant sold the milk as condensed milk. Same.

IMITATION ARTICLES. It is unlawful to sell an article of food which is an imitation of and sold under the name of another article contrary to the statute in such case provided, even though the imitation article is not adulterated nor injurious to health. Com. vs. Kolb, 13 Pa. Super. Ct. 347.

CHEESE. Dealers must comply with the statute which requires that all cheese shall be branded with the name and address of the manufacturer and the kind of cheese it is, and that the lettering must be the required size, unless the cheese is not large enough, in which case the writing must be plain and clear. 6 Pa. Dist. Rep. 689.

CHEESE. A dealer in cheese manufactured out of the state may under the Act of 1897 brand the same with his name as dealer and his address and place of business, in view of the impossibility of always ascertaining the manufacturer's name and address. Cheese Law (Attorney General), 20 Pa. Co. Ct. 61.

CHICORY. Coffee adulterated by the addition of chicory, wheat, rye or peas is not an ordinary article of food within the meaning of the statute against the adulteration of food or mixtures of compounds recognized as ordinary articles of food. In re Stephens and Wilder, 5 Pa. Dist. Rep. 104.

LIQUORS. Where liquors are impure or have been adulterated or their value impaired in the least, no recovery can be had for the sale of the same. Clohessy vs. Roedelheim, 99 Pa. St. 56.

MILK. PROSECUTIONS. Prosecutions for the violation of the Act of 1878 prohibiting adulteration of milk belong only to the court of Quarter Sessions and a Justice of the Peace has no jurisdiction thereunder. Com. vs. May, 21 Penn. Co. Ct. Rep. 546.

SKIMMED MILK. Cans or vessels from which it is sold must be labeled as such in letters not less than one inch long. Com. vs. Hough, 1 Pa. Dist. Rep. 51.

WATERED MILK. In a prosecution for selling watered milk unlawfully it is not necessary to show by direct evidence that the defendant watered the milk in order to sustain a conviction. Com. vs. Darlington, 9 Pa. Dist. R. 700.

SKIMMED MILK. A person cannot be convicted for selling adulterated food who sells milk plainly marked as skimmed milk, but which has been deprived of its cream by the separator process instead of by the modes of skimming. Com. vs. Haufnal, 185 Pa. 376.

OLEOMARGARINE. It is a valid exercise of the police power to prohibit its manufacture or sale. Powell vs. Com., 114 Pa. St. 268; Com. vs. Shirley, 152 Pa. St. 170.

OLEOMARGARINE. The sale of oleomargarine from a broken package, imported into the state, is a violation of the statute prohibiting the manufacture or sale of oleomargarine. Com. vs. Paul, 148 Pa. St. 559.

OLEOMARGARINE. The act of May 5, 1891 (P. L. 241), regarding oleomargarine is held to be constitutional. Com. vs. McCann, 14 Penn. Super. Ct. 221.

OLEOMARGARINE. The act of May 5, 1899 (P. L. 241), regarding the manufacture and sale of oleomargarine does not contravene the constitution. Com. vs. Diefendacher, 14 Penn. Super. Ct. 264.

OLEOMARGARINE. It is held that under the act of 1899 butter may be colored yellow, but oleomargarine may not be so colored; and that the intention of the legislature is to regulate the manufacture and sale of oleomargarine and prohibit the imitation of yellow butter by mixing substances with oleomargarine during or after its manufacture. Com. vs. Vandyke, 13 Penn. Super. Ct. 484.

OLEOMARGARINE. The act of 1899 (Pub. Laws 241) is not unconstitutional as abridging the privileges of communities of citizens of the United States. It does not deny to all persons the equal protection of the laws. It does not deprive a person of his property without due process of law. It does not contravene the constitutional right of acquiring and possessing property. McCann vs. Com. 198 Penn. 509.

OLEOMARGARINE, FINE. Defendant was charged under two indictments with illegal sales of oleomargarine under the act of May 5, 1899 (P. L. 241). The first charged an offense committed on June 3, 1900; and the second charged an offense committed on July 6, 1900. Held, that the court could not impose imprisonment under the first indictment and a fine under the second indictment, but that under the law the first offense should be punished by a fine and the second by a fine and imprisonment. Com. vs. Fink, 16 Penn. Super Ct. 191.

OLEOMARGARINE. Where the habitual sale of imitation butter has been admitted, evidence of the good character of the defendant cannot be admitted to create a doubt as to the conceded sale. Com. vs. Kolb, 13 Pa. Super. Ct. 347.

OLEOMARGARINE. An agent, without the knowledge of his principal, solicited an order for oleomargarine. The principal shipped the oleomargarine colored in imitation of pure butter in the name of the purchaser, but in care of the agent and without the agent's knowledge that it was so colored in imitation of pure butter. Held, that the agent could not be convicted of selling oleomargarine, since he had no chance to examine the package and tell whether it was colored or not and had a right to presume that the principal would comply with his order, and had no reason to suspect that he would send adulterated goods. Com. vs. Richards, 16 Montg. Co., L. R. 176 (Penn.)

OLEOMARGARINE RESTAURANT KEEPERS. In order that a restaurant keeper shall become subject to the penalty provided in the Act of 1885 for furnishing oleomargarine to customers with their meals, it is not necessary that a specific price be placed upon the oleomargarine distinct from that charged for the rest of the meal. Com. Alleghaney Co. vs. Hendley, 7 Pa. Super. Ct. 365.

OLEOMARGARINE. Furnishing oleomargarine as part of a meal ordered by a customer is sufficient to convict a restaurant keeper of the sale of oleomargarine under the act of 1885. Com. vs. Miller, 131 Pa. State 118.

OLEOMARGARINE. A grocer in Philadelphia had a license to sell oleomargarine and sent his agents into M. county to take orders. The orders were sent to Philadelphia and accepted and the goods were shipped in care of the agent to the customers, but in the customer's name. The agent took the goods from the railroad and delivered them to the customer. Held, that the defendant could not be convicted of selling oleomargarine in the county without a license and that the sale was made in Philadelphia. Com. vs. Gardner, 16 Montg. L. R. 171 (Penn.).

OLEOMARGARINE. Under the act of 1885 it must be shown that the oleomargarine was sold as an article of food. If it was sold for some other purpose, such as wagon grease, it is not a violation of the law. Com. vs. Schollenberger, 153 Pa. State, 625; Com. vs. Callahan, 1 Pa. Dist. Rep., 437.

RASPBERRY SYRUP. In a prosecution for the sale of a pint of raspberry syrup alleged to contain salicylic acid the court would not admit evidence as to whether the salicylic acid was poisonous or injurious to health, though it was charged to be poisonous and injurious to health, and instructed the jury that if salicylic acid was present in any quanity they might find the defendant guilty. The defendant was found guilty. This was under the law regulating the sale of adulteration of food and drink.

The verdict was sustained, although the court was equally divided. Com. vs. Kevin, 1 Penn. Super. Ct. 414.

ILLEGAL SALE OR USE OF OLEOMARGARINE. A person may be convicted of selling oleomargarine unlawfully colored in imitation of butter, in violation of Act of May 5, 1899 (P. L. 241), where it appears that he solicited orders for the article and received pay for the same at the time the orders were given; that he sent the orders, together with the money, to a manufacturer in another state; that the manufacturer packed the several parcels ordered in one crate or box, and addressed and sent the same to the dealer as "agent"; and that the latter distributed the parcels to the several persons who had ordered them. Commonwealth vs. Leslie, 20 Pa. Super Ct. 529.

RHODE ISLAND.

ADULTERATION. A statute which provides that milk containing less than a certain per centum of solids and fats shall be deemed adulterated is valid. State vs. Smith, 14 R. I., 100; 51 Amer. Rep. 344.

MILK. The provision that no person shall sell or exchange milk which does not comply with the requirements of sec. 6, c. 147, Gen. Laws, applies to all persons, whether registered dealers or not. State, Baker vs. Luther, 20 R. I. 472.

Where the statute provides that milk shall be deficient in milk fats if it contains a greater per centum of watery fluids or less of milk solids than prescribed by sec. 8, which provides that milk which shall not contain more than 88 per cent of watery fluids or less than 12 per cent of milk solids or less than 2.1½ per cent of milk fats shall be deemed to be adulterated it is not essential that the sample of milk complained of is deficient in milk fats. State, Baker vs. Luther, 20 R. I. 472.

MILK. Possession of milk below the legal standard is not punishable. An intent to sell must be shown. State vs. Smyth, 14 R. I. 100.

MILK ANALYSIS. An act which confines the testimony to analysis of the samples which are destroyed in the process of analysis is constitutional. State vs. Groves, 15 R. I. 208.

MILK. Master's Liability for Act of Servant. Where adulterated or inferior milk is found in the possession of a servant in addition to the evidence that the milk was in his possession for sale, in order to hold the master liable it must also be shown that the servant having it so for sale was acting in pursuance of the will of the master. State vs. Smith, 10 R. I. 258.

TENNESSEE.

UNWHOLESOME PROVISIONS. A person who furnishes provisions for the market is bound to use ordinary care to see that they are wholesome. Hunter vs. State, 1 Head (Tenn.) 160.

KNOWLEDGE. Held that if the defendant might have known by ordinary care and diligence on his part or on the part of those employed by him in preparing pork for the market, that it was unsound, whether in point of fact he knew it or not, he should be convicted. But if by means of ordinary care and diligence the defendant could not and did not know the pork was unsound then he is not guilty. Hunter vs. State, 1 Head (Tenn.) 160.

UNSOUND PROVISIONS. Liability for Selling. One who sells provisions for market is liable for any damage arising to the buyer from their unsoundness if he knew of their condition or might have known of it by ordinary care and prudence. Hunter vs. State, 38 Tenn. 160.

LIQUORS. The law requiring a person selling liquor to take an oath and give bond that they will not adulterate them is not complied with if the person takes an oath not to mix any poisonous substance with such liquors. Hall vs. State, 9 Lea (Tenn.) 574; Levi vs. State, 4 Baxt. (Tenn.) 289.

TEXAS.

ADULTERATION. Labeling. Under the statute making the mixture of articles of food without labeling the product an offense, is too general. It should name the particular article of food the adulteration of which is prohibited and which is required to be labeled. Dorsey vs. State, 38 Tex. C. Rep. 527.

ADULTERATED FOOD. When there is no evidence that the defendant knew that the food was adulterated and that he offered it for sale, the conviction should not be sustained. Cantee vs. State (Tex.) 10 S. W. 757.

ADULTERATION. Where the statute requires in order to sustain conviction that the seller shall have knowledge of the adulteration, the same must be shown. Sanchaz vs. State, 27 Tex. App. 14; Cantee vs. State (Tex.) 10 S. W. 757.

DISEASED FLESH. It is not only necessary, in order to convict one of selling diseased flesh, to show that the flesh was diseased, but also that the defendant had knowledge of the fact. Teague vs. State, 25 Tex. App. 577.

MEAT. In order to convict a person for slaughtering or selling the flesh of any diseased animal under an act making it unlawful to knowingly slaughter for food any diseased animal or sell the same it must be shown that he knew at the time of the sale that the meat was diseased. Teague vs. State (Tex.) 8 S. W. 667.

GOOD MIXTURES. A statute which provides that if certain named nutritious and wholesome articles of food are mixed or combined, the product must be labeled showing the component elements thereof, is valid; but one which embraces all articles of food or drink is too general in its terms and cannot be enforced. Dorsey vs. State, 38 Tex. C. Rep. 547.

WASHINGTON.

OLEAGINOUS SUBSTANCES. Held that the code forbidding the sale of an oleaginous substance purporting to be or having the semblance of butter or cheese without some distinguishing mark and the use of imitation dairy products in eating rooms unless the prescribed notice is given, is repealed by Wash. Act of March 11, 1895; and that Sec. 5 repeals all acts and parts of acts in conflict with its provisions. State vs. Allen (Wash.), 44 Pac. 121, 14 Wash. 193.

COMPLAINT FOR SELLING OLEOMARGARINE. Sufficiency. A complaint under the law of March 11, 1895, Par. 5, alleged that the defendant sold "two pounds of an oleaginous substance compounded and colored in imitation of yellow butter, produced from pure milk or cream from the same, and such oleaginous substance and compound not having been directly and wholly, and at the time of the manufacture thereof, free from coloration or ingredients that caused it to resemble butter produced from unadulterated milk," etc., and it was held that the complaint was not good as it did not sufficiently state that it was made from unadulterated cream or milk. State vs. Henderson, 15 Wash. 598.

WEST VIRGINIA.

DISEASED MEAT, PROOF OF KNOWLEDGE. On prosecution for selling diseased meat without disclosing the fact to the buyer it is sufficient to prove that defendant knowingly sold such meat. The presumption arises from such proof that the sale was unlawful, and the burden of proof is then on the defendant to show that he informed the buyer of the unsound condition of the meat. Seibright vs. State, 2 W. Va. 591.

OLEOMARGARINE. Validity of Act. An act providing that it shall be unlawful for any vendor or manufacturer of oleomargarine or artificial butter, to manufacture or offer for sale, within the state, such oleomargarine or artificial butter, whether manufactured within or without the state, unless it is colored a bright pink, is constitutional. State vs. Meyers, 42 W. Va. 822.

A STATE CAN PROHIBIT THE SALE. A state can prohibit the sale of oleomargarine unless it is colored pink, no matter whether manufactured within the state or elsewhere. State vs. Meyers, 42 W. Va. 822.

VALIDITY OF COLOR REQUIREMENTS. A statute requiring that all oleomargarine sold within the state must be colored a bright pink, is constitutional, even though it applies to oleomargarine manufactured without the state, and sold within it, because such a statute has for its object the prevention of fraud upon the public and is therefore a valid exercise of the police power. State vs. Meyers, 42 W. Va. 882.

POWER TO MAKE REGULATIONS. The Norfolk City ordinance, prohibiting the sale of impure or unwholesome milk, prescribing a test, creating the office of milk inspector, and requiring him to make frequent inspections and to report all violations of the ordinance to the board of health, was a proper exercise of the police power. City of Norfolk vs. Flynn, 44 S. E. 717.

WISCONSIN.

ADULTERATION. Recovery of Penalty. Under the law regarding the adulteration of food and drink a penalty may be recovered in a civil action by the state for the first offense. The penalty is not a fine and the first offense is not a misdemeanor. State vs. Grove, 77 Wis. 448.

FALSE CHARGES. Adulterated Butter. Libel. Where a newspaper falsely accuses a dealer of selling adulterated butter, and goes on to state that the butter is 40 per cent butter and the rest grease, and that persons buying such article are misled into buying it for butter, it is held that such words are actionable per se; and that such words injure the dealer individually and as a dealer in the article, and would be the cause of a morbid turptitude against him. Dabold vs. Chronicle, 107 Wis. 357.

FISH INSPECTOR. Power. Liability. The power of a fish inspector to determine the quality and healthfulness of fish offered for sale on the markets of a city, and if found to be unwholseome or unfit to be eaten, to condemn and destroy it, is judicial in its nature, and he is not liable to any one in an action for damages, however ignorantly, negligently or carelessly he may act, in the exercise of such power, provided he keep within his jurisdiction. Fath vs. Koeppel, 72 Wis. 289.

MILK. Evidence. Held that evidence that cheese made from milk, which was lumpy and bloody, is bloated and puffed and inferior in quality, and that some cheese manufactured from milk furnished by defendant in common with others was so bloated and puffed, is insufficient to show that the milk which the defendant furnished was lumpy or bloody. Bilgrien vs. Dowe, 91 Wis. 393.

What Is Diseased Meat?

By C. W. Stiles, M. D.
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This interesting and important discussion of the implied warranty of wholesomeness in the sale of articles of food was originally published in the *Journal of the American Medical Association,* Vol. XVIII, No. 9 (March 3, 1917). In a foot note Dr. Stiles explained that he had recently, with the consent of the Surgeon-General, appeared as an expert witness in two suits-at-law based upon the sale of, in one case, pork and in the other butterfish. His testimony, which followed the lines of the present article, was of sufficient interest to several judges and attorneys to warrant his publishing his views. They are, indeed, of interest to all who manufacture and sell foodstuffs.—*Editor's note.*

SEVERAL instances of the sale of trichinous[1] pork and of nematode-infested[1] butterfish have recently been brought to the attention of the division of zoology of the Hygienic Laboratory. As these cases bring up the question of the "implied warranty" connected with the sale of articles of food for consumption by human beings, it seems advisable to discuss them from the standpoints of medical zoology and public health.

Certain laws provide that "diseased" meat and meat from "diseased animals" may not be sold, and in the last analysis the interpretation of these laws is based on the interpretation of the term "diseased."

At least one judge has recently held that the term "diseased" in respect to the food laws should be interpreted in its popular sense. If, however, this view is admitted, it will be found that from the standpoint of the parasitic infections this interpretation would exclude all meats from sale, for probably no animal that has ever been slaughtered for food has been entirely free from infection by one parasite or another. Thus a very high percentage of hogs and sheep is known to be infected in the muscles (namely, the "meat," in narrower sense)[2] with certain parasites belonging to the protozoan group named *Sarcosporidia.* Academically, these animals are diseased, but should they be so classified in the sense of the food laws? No case of disease in man has ever been traced to these (sarcosporidian) parasites when swallowed in pork or mutton, yet every person who has eaten pork, mutton or lamb a number of times has certainly swallowed many of the protozoa in question.

Again, every animal used for food has in its intestine either protozoa, roundworms, flukes or tapeworms. Some of these parasites, especially certain protozoa, are mere scavengers in the intestinal tract, but many of the infections undoubtedly do more or less harm to their hosts. Accordingly, academically these animals are "diseased," but are they "diseased" in the sense of the food laws?

If all animals harboring animal parasites are to be construed as "diseased," in the sense of the food laws, as they are undoubtedly "diseased" from the abstract academic point of view, it is clear from the zoologic point of view that no meat can be sold legally; hence it would appear logical to the zoologist to conclude that the term "diseased" in the sense of the food laws should be construed in a manner different from its academic interpretation and that, in the sense of food laws, "diseased meat" and "meat from diseased animals" really mean *meat that is likely to produce disease when eaten by human beings.*

Thus, pork, beef or mutton from animals containing *Sarcosporidia* in their muscles or strongyli[3] in their stomachs would not, from this point of view, be meat from "diseased animals," in the sense of meat inspection regulations and food law, despite the fact that this meat is from diseased animals, from the academic, clinical or pathologic point of view as applied to the animals themselves, unless the infection were so extensive as to produce in the meat an edematous[4] or other condition sufficiently extensive to render the meat disgusting or otherwise unfit for food. But in the latter case the meat should be condemned, not because of the presence of the parasites but because of the secondary conditions due to unusually extensive infection by the parasites. Any other conclusion would mean that the law forbids the sale of all meat; but since the law permits the sale of meat, and since the law cannot be assumed to permit the sale of meat which it specifically excludes from sale, it would seem logical to conclude that it is the intent of the law to forbid the sale only of such meat as is likely to cause disease in man, regardless either of the academic or of the popular interpretation of the term "diseased" as applied to the animal itself.

Accordingly, from the zoological point of view, the term "diseased" in meat inspection and food laws is technically quite distinct from the term "diseased" in clinical work and in its ordinary sense.

On basis of the view that "diseased meat" in the sense of the food laws should be interpreted as meaning "meat that is likely to produce disease when eaten by human beings," the question arises as to the bearing of this interpretation on the "implied warranty" on the part of the vendor, that meat he sells comes under this construction. Here, again, the subject has a distinct zoological bearing.

If a vendor sells a bushel of live clams or live oysters in the shell, the sale, and therefore the implied warranty, is made on the assumption that the clams and oysters will be taken out of the shell before being eaten. Despite the fact that the clams and oysters have been sold in bulk, the vendor sold these goods in good faith that they would be *properly prepared for food before* they were consumed, and his implied warranty certainly cannot be assumed to cover injury to a person who might swallow the clams and oysters, shells and all, any more than it could be assumed to cover the point that the purchaser of this food allowed the clams to remain exposed to the sun for several days, to die and decay, before they were eaten.

Likewise, the vendor of live lobsters, crabs, snails, chickens, fish, or of flour, rice, salt, red pepper, milk, corn, green apples, green bananas, nuts of all kinds, potatoes, lettuce, berries, pineapples, coconuts, peas in pod, string beans, etc., presupposes in his implied warranty that the purchaser who buys these foods is under an implied guaranty that they will be *properly handled and properly prepared for reception into the stomach,* before they are served as food. Any other assumption would make the vendor responsible for all omissions and commissions (over which he has no legal control) with respect to the food articles after they had left his ownership and possession.

The implied warranty in the sale of food is therefore correlated with and dependent on an implied guaranty in the purchase of food.

Accepting this last point as axiomatic and fundamental, let us apply the principle to trichinous pork.

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[1] Nematode, a zoological classification of extremely small, often microscopic, worms. A most interesting discussion of nematodes by N. A. Cobb is to be found in the 1914 Yearbook of the Department of Agriculture. Trichina, a small, slender nematode worm which is occasionally found in the muscles of man, the hog and other animals.—Editor.

[2] Protozoan, a primary biological division of microscopic animals whose chief characteristics are that the body generally consists of a single cell and that they reproduce by fission—or division. Protozoa commonly are classified into Rhizopoda Mastigophora, Sporozoa and Infusoria.—Editor.

[3] Strongyle, a term applied to certain nematodes. This genus includes *Agchylostoma,* the so-called hookworm.—Editor.

[4] Edemata (œdemata), a swollen condition of the tissues.—Editor.

When a meat dealer sells pork, he is selling a product which *in its raw state* is dangerous to health, for the reason that it frequently contains certain disease germs (trichinæ) the absence of which cannot be guaranteed by any practical and proper method of meat inspection known. *If the pork is properly cooked* or otherwise properly prepared, these germs are killed, are harmless, and do not *per se* render the pork "diseased" (as food), for if dead they cannot produce disease.

As the absence of live trichinæ in fresh pork cannot be scientifically or practically guaranteed by any known practical and proper method of inspection, and as the presence of live thrichinæ in raw pork is liable to produce disease if eaten by human beings, the conclusion follows either that *raw* pork is not a proper article of food or that the law calls on the butcher to guarantee something that from the very nature of things is not subject to guaranty on basis of any available knowledge; in other words, that the law demands that the butcher must, in principle, *wager a bet* that the pork does not contain live trichinæ. A bet is not a collectable debt at law, and financial reimbursement involved in an implied warranty that is nothing more or less than a bet would seem, logically, to have the same legal status as a bet!

To the zoologist the only proper conclusion is that pork which is not properly prepared for food comes under the same general principles as oysters or clams in the shell, undrawn fowls, live lobsters, uncooked rice, flour, etc., namely, that unless the pork is properly prepared to become food fit for consumption, it is not fit for food at all, and that when a vendor sells raw pork with the implied warranty that it is fit for food, this implied warranty is premised on an implied guaranty by the purchaser that he will prepare it properly to serve as food.

From this point of view, if a person contracts trichinosis, the vendor of the fresh pork is not in any way responsible, because had the pork been properly prepared to serve as food, trichinosis could not have resulted; and if the meat was properly prepared for food, the diagnosis of trichinosis was incorrect.

The case involving the condemnation of butterfish is slightly different from that of trichinous pork.

In August, 1915, the wholesale price of these fish was reported as 7 cents a pound, on a day when the inspectors in one of our cities discovered that certain lots contained small worms. The fish were condemned, and the next day the wholesale price is reported to have fallen to 1 cent a pound. The economic loss resulting to an important industry is estimated to have amounted to many thousands of dollars. The dealers appealed to the United States Fish Commission, and the commissioner requested "an expression of opinion from the Public Health Service as to the nature of these parasites and the probability of their communication to human beings through the eating of butterfish."

The report from the zoologist to the service may be summarized as follows:

1. The parasitic worms from the butterfish submitted for examination and opinion represent a larval (agamic) ascarid.[5]

2. It does not agree with any parasite that is recognized as cause of disease in man.

3. There is no evidence that it would come to maturity in man, even if the ascarid reached the human stomach in uninjured condition and viable.

4. Most of said parasites seem to occur on the viscera of the fish, and since the viscera are removed before the fish is cooked, the number of ascarids that might eventually reach the human stomach is enormously reduced.

5. Since the butterfish are cooked before being served as food, those agamic ascarids that happen to be present in the flesh or under the parietal peritoneum[6] would be cooked before being swallowed; hence they would not be infectious.

6. This office has no evidence that any case of disease in man has ever been caused by these small parasites.

7. The worms in question belong to a group, some members of which form a toxic substance that produces symptoms.

8. Clinical evidence is lacking in support of the theoretical possibility that these worms might, through such a toxic substance, produce harm if cooked and eaten by persons.

9. From the esthetic standpoint, opinion might differ as to the advisability of permitting fish, with these worms in their flesh, to be placed on the market.

10. My own view is that if numerous worms were found in the flesh of the fish, the purchaser himself would discard it; if only a few were present in the flesh, there is no evidence that these would do harm if cooked and eaten with the fish; accordingly, it appears safe to leave the matter in the hands of the public.

This conclusion is based on the premises that neither the raw flesh nor the entrails of butterfish are eaten in this country; in any locality in which these premises do not hold, the conclusion might, on local study, have to be modified.

11. My recommendation is that the bureau take the position (*a*) that the presence of parasitic worms in or on the viscera of food fishes that are eaten cleaned (eviscerated) and cooked does not render these fishes unfit for food; (*b*) that there is no evidence that agamic ascarids in the flesh or under the parietal peritoneum of fish are infectious to man; (*c*) that we have as yet no evidence that said agamic ascarids are toxic to man (*d*) that at most, so far as present evidence goes, the presence of said agamic ascarids in the flesh or under the parietal peritoneum is an esthetic question, and (*e*) that if said agamic ascarids are present in the flesh or under the parietal peritoneum in sufficiently large numbers to greatly depreciate the food value of the fish or to render the fish disgusting or repellent as an article of food, the condemnation if made at all should be made clearly and distinctly on this ground and not because of possible communicability of said parasites to man; (*f*) that the bureau advise conservation in this matter, as the point involves:

The possibility of reducing the home supply of an important article of food, used by many people;

The possibility of an extension of the condemnations to many other species of food fishes;

The possibility of a serious blow to a very important industry (fishing), in which large sums of money are invested and on which many families rely for their livelihood;

The possibility therefore of an actual lessening of our national food supply, with reactionary increase of food prices in other lines;

The possibility of unjustly developing toward fish in general, as an article of food, a prejudice from which it may take years to recover;

and all of these dangers are of a nature that they should not be lightly incurred on basis of theoretical possibilities which, so far as present knowledge goes, are not supported by any tangible practical clinical experience. In fact, the ultimate public health injury resulting from a possible restriction of the food supply might easily outweight the occasional injury done to a few individuals in case these persons happened to develop some toxic symptoms as the result of swallowing too great a number of these parasites.

Here again is a case dependent on the interpretation of the word "diseased" in the sense of the food laws. As food, the fish should not be considered "diseased" since the presence of these innocent little threadlike worms encysted chiefly on the entrails would not render the fish liable to produce disease in man; but from the standpoint of the fish themselves, pathologic changes exist, and hence disease is undoubtedly present.

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[5] A larval agamic ascarid is a nematode of the *Ascaridae* family capable of reproduction without impregnation, and in the intermediate stage of its life history typified by the tadpole, between embryo and adult.—Editor.

[6] Parietal peritoneum, the walls of the membrane which, in this case, lines the body cavity of the fish.—Editor.

The Manufacture of Bread

By The Editor

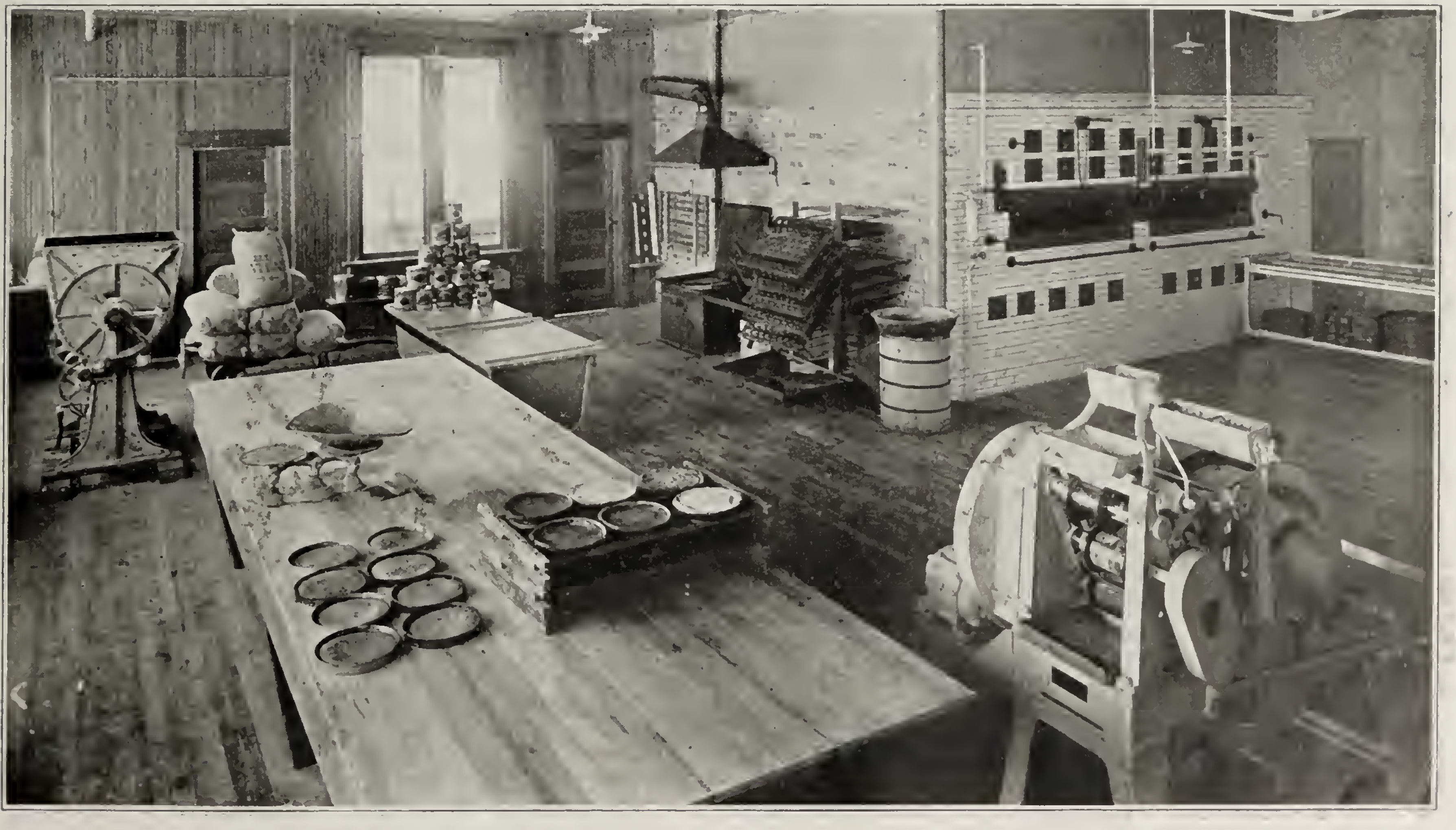
ALTHOUGH commercial baking dates back to the early days of recorded history, it is only within comparatively recent times that the industry has been systematized and recognized as being susceptible to scientific control. The early commercial baker, whose crude ovens are brought to light in archeological investigations, was something of an artist; he worked by instinct rather than by rule, and, as is the case with all artists, there was a certain unevenness about his product that would not be tolerated in these days of intense competition and big unit production.

The chemical laboratory has done much to lessen the difficulties of the commercial baker. Unfortunately, the baking chemist has not been welcomed any too cordially by the average baker. This is probably due to the fact that commercial baking is an hereditary craft, endowed with all of the traditions and conservatisms natural to such a calling. The early rules for baking were transmitted from father to son by word of mouth. As commercial baking, because of the small amount of capital required to enter the industry, has until recently been monopolized by the lesser lights of industry, both financially and mentally, it is small wonder that a mass of folklore, tradition and superstition has attached itself to the calling. Even in Germany, the land of scientific manufacture, the baking industry seems to be an exception to the general rule and is many steps behind the average industry of similar importance. The bakers in England and Scotland are more interested in the scientific aspects of their industry, while it is a common saying in the baking industry that the bakers of France are forced to deal with the worst flour in the world and yet produce the best bread. French bakers are more inclined to be scientific than are those of any other country. The bakers of Austria are blest with the finest wheat grown—that of Hungary—but here again the industry has for generations been in the hands of guilds or labor unions and scientific progress has been slow.

In this country—the melting pot of all nations—we find many Canadians and others of British blood among the commercial bakers, and many, very many, of Teutonic strain. Some commercial bakers there are of Gallic origin, but, with the exception of New Orleans and other French settlements, their influence is not great. During the past ten or fifteen years the desire for scientific knowledge concerning baking has spread very rapidly in this country and it bids fair to increase in even greater ratio. In baking perhaps more than in any other branch of the food industry the work's chemist is of real assistance to his employer. The product, bread, is not standardized and, indeed, the baker is allowed considerable leeway, both as to the ingredients entering into the product and as to the method of manufacturing it. It must, of course, be wholesome, and practically all commercial bread complies with this prime requirement. And it must, equally of course, be palatable and appetizing, or otherwise the baker will soon find himself without a trade. With these two requirements satisfied, the bakeshop chemist is at liberty to suggest changes in material and method with far more freedom than is the case in many other branches of the food industry. In fact, there is a certain obligation upon him constantly to endeavor to utilize in the form of bread whatever the market offers that is suitable for that purpose. The commercial baker, with his facilities for scientific control, can, and should, make use of wholesome ingredients that would undoubtedly baffle the ingenuity of the housewife with her meager knowledge of food chemistry.

Commercial Bread Flours.

The first step in the manufacture of bread is, as might be expected, the obtaining of an ample supply of the main raw material—flour. By virtue of standardized baking tests it is now entirely feasible to classify flours within certain definite limits, and the wise baker before starting to make extended use of any particular type of flour takes pains to provide for a constant supply of that exact type. An occasional purchase of flour above the baker's average is almost as demoralizing upon his trade as is an occasional



Photograph, Fourth Ward Bakery, La Porte, Ind.
TYPICAL SMALL BAKE-SHOP. POPULAR TYPE OF MOLDER IN LOWER RIGHT HAND CORNER.

purchase of flour slightly below his set standard. Uniformity is a desideratum of great importance in commercial bread and it is the poorest sort of strategy to subject to unfavorable comparison the average output because of the fortuitous purchase of a car or two of flour a few points above normal. It is generally believed that the baker uses an inferior quality of flour. Such is emphatically not the case. The average American baker uses a blend of two or more flours of a grade known as baker's patent, a type of flour possessing practically all of the good points of the household patent, together with the higher nutritive value of the so-called fancy clear. It is true that a baker's patent does not command quite as high a price on the open market as does a household patent, but with respect to flour the price obtained is not a true criterion of worth. Dietetically many, if not all, of the flours known as baker's patents are superior to the higher priced household patents.

The commercial baker also uses considerable quantities of rye flour, some of which is baked into bread with but little admixture of wheat flour, but the greater part of which is used in a mixture of about equal parts of rye and wheat flours. Rye is an excellent cereal and the commercial baker's efforts to popularize it in this country are to be commended. In addition to the blending of various types of wheat flour and to the mixing of rye and wheat flours, the commercial baker incorporates with his mix other edible cereals, such as corn in the form of flour or starch and rice in the form of flour. Both are highly nutritious and in every way qualified to take their part in the food supply of the nation. By the judicious blending with a strong wheat flour, such as that milled from No. 1 Northern wheat, of carefully predetermined amounts of the more starchy cereals the baker is able to obtain the equivalent of soft winter wheat patent flour, known as pastry flour.

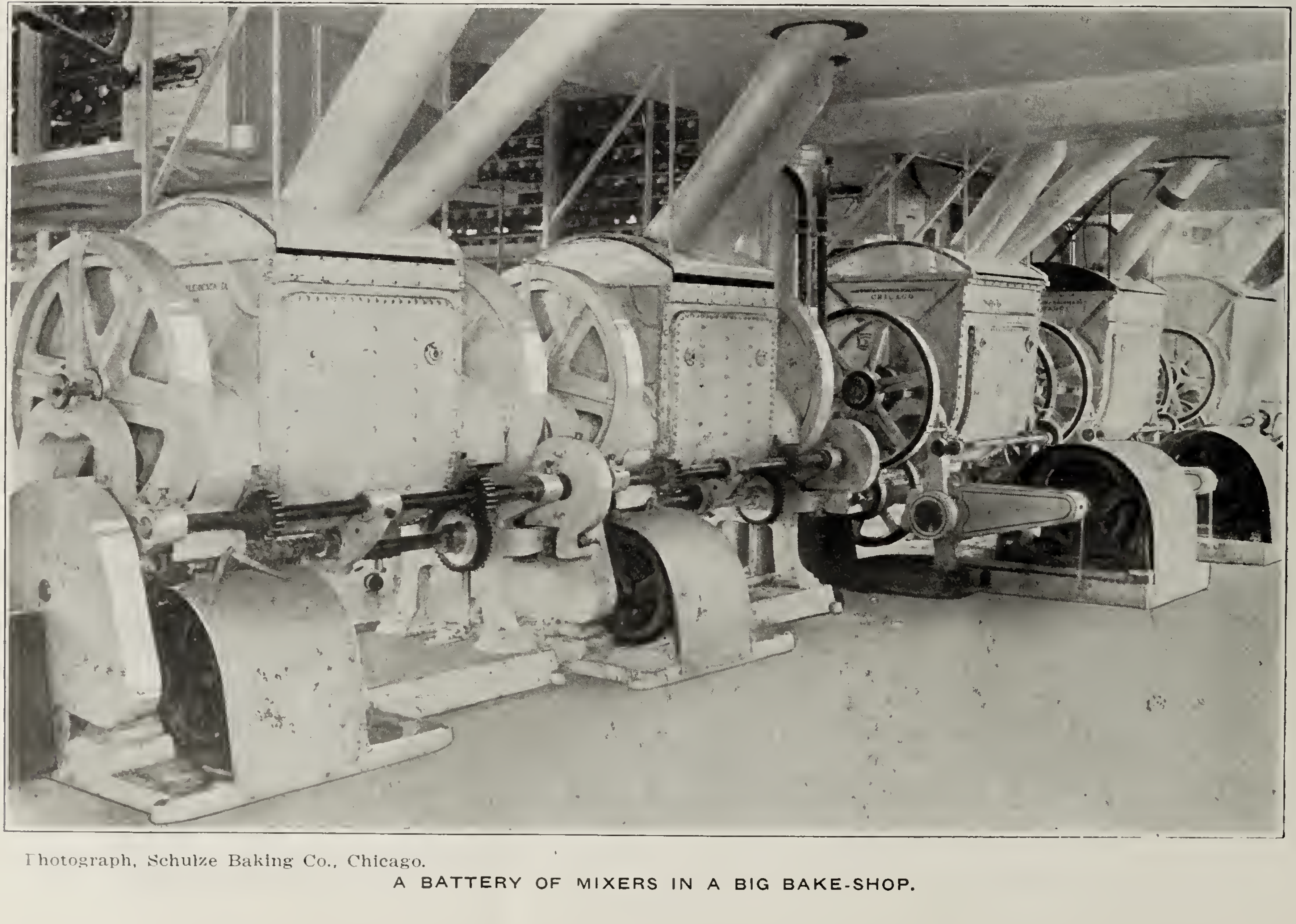
Commercial Shortenings.

In operating a commercial bakeshop the heaviest raw material expense is, naturally, for flour. Next to that come the fats. These are of various sorts and in practically all cases are wholesome, sweet and free from objectionable qualities of any sort. Lard is used very generally, although its place is being taken to a certain extent by so-called compound lard, which is a mixture of lard stearin, beef stearin and cottonseed oil. This mixture is well made under excellent conditions and against it no just criticism can be leveled. Cottonseed oil alone is often used as shortening for commercial bread and makes an excellent loaf. Of late, corn oil has been put into service by the bakers with excellent results. No doubt as days go by other edible fats will be rendered available and it will be the baker's pleasure and duty to make use of all that can satisfactorily be incorporated in a loaf of bread. Edible fats are, under even the most favorable circumstances, an expensive form of food and it is wise to make use of vegetable fats wherever possible.

The use of some form of milk is growing in favor among commercial bakers. This may be in the form of whole milk, either raw or pasteurized; it may be whole or skim milk dried and used in the form of a powder; or it may be some form of concentrated milk, such as the ordinary condensed milk of commerce (sweetened), or evaporated milk (unsweetened).

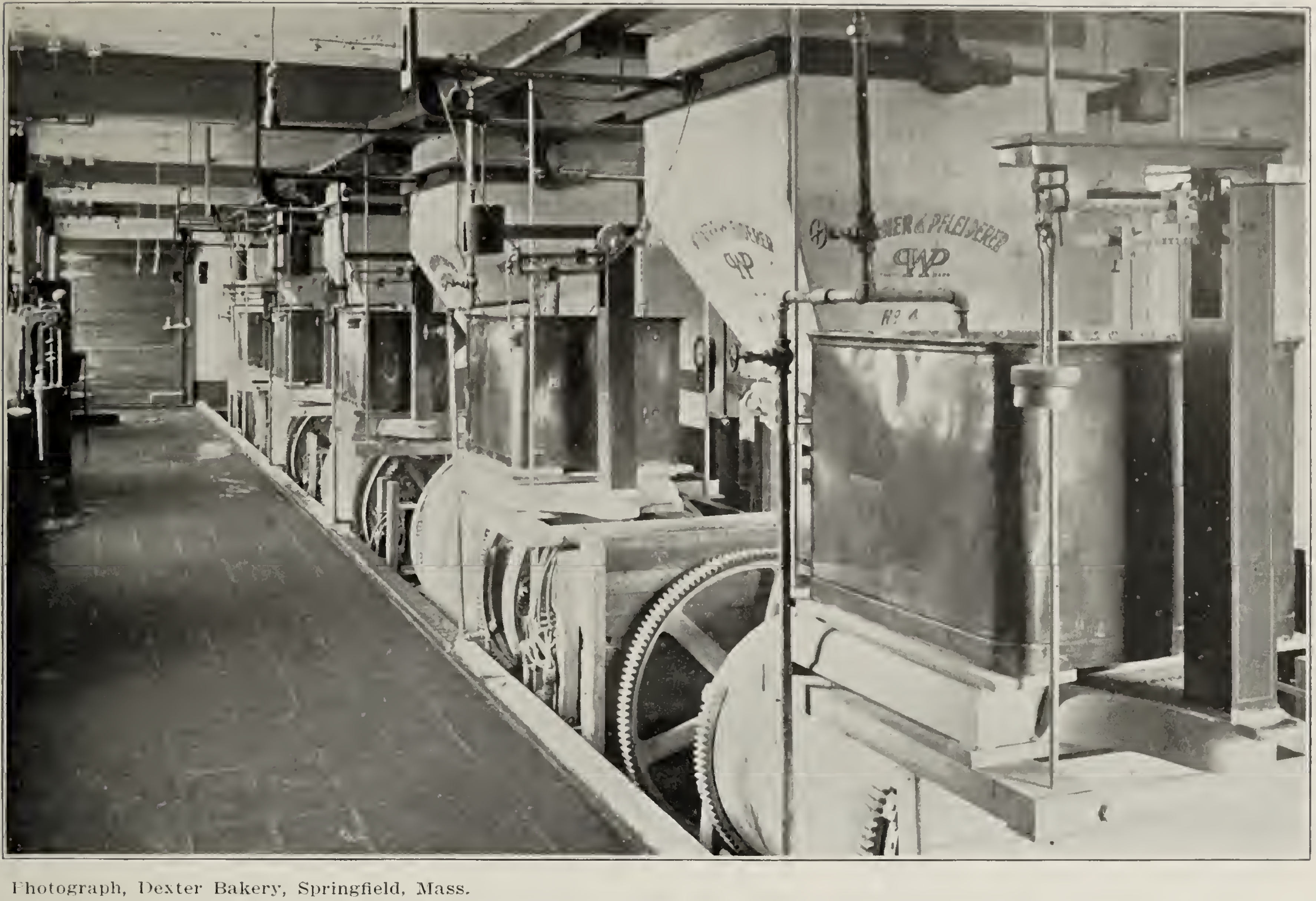
Compressed Yeast Used by Bakers.

Next to shortening in financial importance is the leavening agent—compressed yeast. Formerly the commercial baker was in the habit of using brewer's yeast in liquid form, and, indeed, of growing his own yeast. It is now generally recognized that the cultivation of yeast is a specialty and should be left to men who specialize in that calling. In consequence, the commercial baker is a heavy buyer of the best grade of yeast obtainable. Nothing is more demoralizing to a bakeshop than yeast which is uneven in its action. The modern dough must keep to schedule with the punctuality of a railroad train, and as the activating principle of dough is yeast, it is clearly evident that no small economics can well be practiced as to the quality thereof. Bakers have, however,



Photograph, Schulze Baking Co., Chicago.

A BATTERY OF MIXERS IN A BIG BAKE-SHOP.



Photograph, Dexter Bakery, Springfield, Mass.
VIEW FROM MIXING GALLERY, SHOWING MIXERS AND VARIOUS MEASURING DEVICES.

endeavored to economize in the amount of yeast used by stimulating the growth of yeast in the dough by means of various so-called "yeast foods." One popular agency is malt extract or malt flour, which supplies the yeast with maltose, an easily assimilable nutrient; others widely used are gelatinized starch in the form of corn flakes; and of late the baking world has heard much of the use in this connection of mineral salts. Scientific research has conclusively proven that in order to grow vigorously and rapidly the yeast plant must be supplied not only with saccharine matter, but with certain salts, notably calcium. It is also known that nitrogen is necessary and that oxygen facilitates the growth. It was this knowledge which led to the formulation of an accelerant of yeast growth known as "arcady flour." By its use one of the large baking concerns was able to make the water of Boston resemble the water of Pittsburg in respect to its content of mineral salts. Unfortunately, the matter was not properly understood at the outset and gave basis to the "plaster of paris" canard which was widely heralded by the newspapers a year or so ago.

Sugar in Panary Fermentation.

The commercial baker uses cane sugar or corn sugar or both. In all sweet goods, and the average baker of bread also bakes cakes, cane sugar is, of course, required. For the ordinary process of fermentation corn sugar or a mixture of corn sugar and cane sugar is used with eminently satisfactory results. Maltose in the form of malt extract or malt flour is used, but, as already indicated, principally as a food for the yeast. Any large amounts of maltose are noticeable in the finished loaf. The quality of cane sugar used by the commercial baker is practically identical with that used by the housewife. Corn sugar is the dry form of completely hydrolized corn syrup or commercial glucose. It is almost entirely dextrose. In ordinary times it costs about 2 cents less per pound than does cane sugar and of it 5 per cent more must be employed to obtain results identical with those obtained by the use of cane sugar for the simple reason that cane sugar takes up a molecule of water in its inversion during fermentation.

Salt in Bread Making.

Salt has a very considerable influence on fermentation. Theoretically it is a retarding agent, and undeniably pure sodium chloride has an inhibiting effect upon the growth of yeast. Luckily the salt of commerce carries with it a sufficient quantity of salts other than the chloride of sodium to render its use beneficial from the fermentative point of view. Salt serves to strengthen the binding qualities of the gluten of the flour, to check the diastatic conversion of starch to sugar, to check alcoholic fermentation and to retard the development of lactic ferments and of *mesentericus vulgatus*—the "rope" bacillus. Apart from the question of fermentation, the use of salt is required from the point of view of palatableness. As is well known, a small amount of salt brings out other flavors.

Water an Important Ingredient.

We now come to the highly important element of water. Perhaps because water comes to the baker through the city mains, he regards it with about as much seriousness as he does the atmosphere in the room. As a matter of fact, its influence upon fermentation is most important. As already pointed out, the genesis of "arcady flour" was due to the realization that the water of Pittsburg differed as to fermentation from the water of Boston. Practically all water contains certain mineral salts in solution, in practically no two cities is the water identical, and with very few exceptions no baker pays any attention whatever to this matter. Here is one of the many places where the bakeshop chemist could well devote considerable research.

The amount of water incorporated in the dough is a point intimately associated with the baker's pocketbook. Baked bread is, roughly, one-third water, although the figure of 33⅓% is the average of fairly widespread extremes. It is financially to the baker's advantage to incorporate in his

Photograph, Schulze Baking Co., Chicago.

FERMENTATION ROOM, WITH VIEW OF POCKET-TYPE PROOFER IN BACKGROUND.

dough all the water which it will absorb provided the added moisture can be carried through the various steps of breadmaking to the finished loaf. One of the determining factors in the selection of flour is its water absorption power; many are the supplementary ingredients offered the baker with the argument that their use will increase the absorption power of the dough in which they are incorporated; many dough mixers, and occasionally other machines, are designed with an eye single to the incorporation of water. The fact of the matter is that while it is entirely feasible to incorporate in the dough very considerable amounts of water, the excess is almost invariably driven off during the manufacturing processes, particularly in the oven, and the net result is that the loaf is fairly close to the normal figure of 33⅓% moisture, so that no harm is done.

Typical Commercial Formula.

There is nothing secret about the various ingredients used in bread. As an example of a typical formula the following is given:

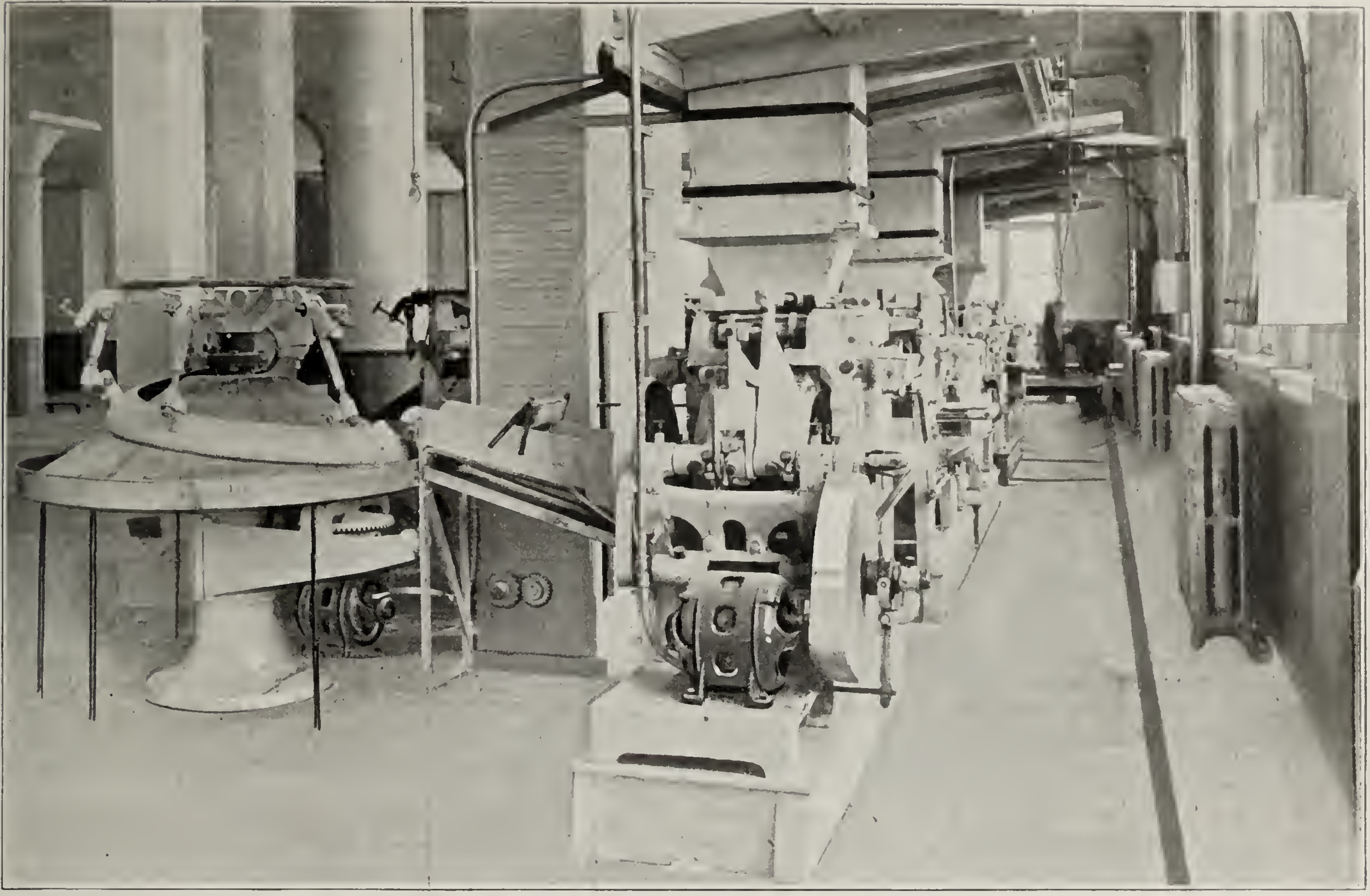
	Plain dough lbs.	Dough with malt lbs.	Dough with milk lbs.	Malt and milk dough lbs.
Flour	100.00	100.00	100.00	100.00
Yeast	1.25	1.25	1.25	1.25
Salt	1.5	1.5	1.5	1.5
Sugar	3.	2.25	1.	0.7
Lard	3.	3.	2.6	2.7
Malt extract..........	.....	1.	.....	1.
Milk, sweetened condensed	......	......	4.	3.
Water, approximately..	59.	58.25	58.	58.

It will be noticed that the amounts of sugar, lard, malt extract and milk are interdependent. For instance, if sweetened condensed milk is used, the normal amount of sugar is reduced one-half; when malt extract is employed, the normal sugar figure is reduced 25 per cent; and so on. The figure for water can never be given definitely as it depends upon the absorption power of the flour. A typical high grade baker's patent flour is generally able to absorb water equal in weight to about 60 per cent of its own weight, although this figure varies among flours during any season, and varies with all flours from season to season. The correct absorption figure is easily obtained in the bakeshop laboratory and is used until changed conditions indicate that an altered figure is called for.

Mixing the Dough.

In preparing the mix for use the flour is carefully sifted and at the same time aerated, and if a blend is used the process of blending is carried out by machines especially designed for that purpose and which bring about complete intermingling of all flours which constitute the blend. Flour is fed into the mixer from hoppers supplied by an automatic cut-off which comes into play when a certain number of pounds have run through the gate. The other ingredients are generally added from open containers although every ingredient is carefully weighed in order to insure strict compliance with the formula. The machine for mixing the dough is supplied with revolving arms of various sorts and shapes. In their action many resemble the household ice cream freezer while others have two double arm dashers which work reciprocally, each complete revolution pulling and compressing the dough in a manner calculated fully to develop the gluten. Still another type is based upon a somewhat simpler rotating element but one traveling at high speed. All mixers have much in common and all of the recognized types produce an evenly mixed dough.

In mixing dough in large units the matter of temperature is of vital importance. The mixed dough should leave the



Photograph, Schulze Baking Co., Chicago.
A ROW OF DIVIDERS WITH ROUNDER AT LEFT.

mixer at a temperature of 27° C. (80° F.). The allowable variation should not be more than 1° C. or, roughly, 2° F. each way. The baker in raising flour to the proper temperature found by the following formula, the figures for temperature being expressed in degrees Fahrenheit:

$$80 + \frac{(80 - \text{temp. of flour}) \times \text{weight of flour} \times 0.4}{\text{weight of water in lbs.}}$$

This formula is suitable for use with the average mixing machine. Certain types of high speed mixers generate sufficient mechanical heat to call for a slight alteration of the multiplying factor. It should also be borne in mind that a temperature higher than 45° C. (112° F.) will kill yeast. For this reason the baker endeavors to keep his stored flour at a temperature well above the degree which would call for very warm water in mixing.

Many mixers are water-jacketed, an excellent feature as it permits of the running through the water-jacket of warm water in the handling of cold flour and of cool water in summer when it is necessary to reduce the temperature of the mix rather than to raise it.

Straight Dough Used.

While there are still some advocates of the old fashioned sponge type of fermentation in which one-third or one-half of the total flour is started fermenting some hours in advance of the addition of the balance of the flour, it is rapidly becoming the vogue to employ what is known as the straight dough method. In this case, all of the ingredients are mixed at one time, and while the method calls for the use of more yeast it has so many points of superiority over the older method that it bids fair to entirely replace it. If room temperature and atmospheric moisture content are constant the duration of the fermenting period and the amount of yeast employed bear a fixed relationship to each other. Within limits, the proper percentage of yeast for use with various fermenting periods may be determined by the following formula:

$$\left(\frac{\overset{1.25}{(\%\text{ of yeast used})} \times \overset{5}{(\text{basic fermenting period})}}{\text{desired fermenting period expressed in hours}}\right)$$

the foregoing being based upon the use of the recipe given herewith. Most bakers use a fermenting period of about 5 hours, although it is entirely feasible to make good bread in a much shorter time and it is possible, although not desirable, to lengthen the fermenting period very materially. An unduly long period of fermentation gives opportunity for the development of the lactic acid bacteria always present in flour and is likely to produce sour bread.

In the Fermenting Room.

Working the dough in a bakeshop is the most interesting feature of commercial bread-making. It is by punching the gas-permeated dough right manfully and then turning it top to bottom that the accumulated carbon dioxide gas is dispelled. The dough is allowed to ferment in a long trough on wheels, the fermenting room being kept at a temperature of 27° C. (80° F.) and of 75 per cent relative humidity. Both temperature and atmospheric moisture have an important bearing upon fermentation. The basic formula for working doughs is as follows:

First punch at the end of 50% of the entire fermenting period.

Second punch at the end of 25% of the entire fermenting period.

Third punch at the end of 12½% of the entire fermenting period.

Fourth punch at the end of 6¼% of the entire fermenting period.

Divide at the end of 6¼% of the entire fermenting period. This formula is often varied to the end that the first working will take place at the end of 60 per cent of the entire fermenting period, the next at 25 per cent, another at 10 per cent, the dough going to the divider at an additional 5 per cent of the period. It is in the fermenting room that the average baker most willingly surrenders his pride in the rule-of-thumb and yields to the instrument of precision known as the dough thermometer. Even the most reactionary baker possesses an excellent thermometer suitable for use with dough and makes use of it during the fermenting period. While it is true that strict control of the fermenting room temperature and relative humidity, coupled with careful mixing would render unnecessary the use of the dough thermometer, the bakers have not yet reached the point where it would be safe for them to rely upon external conditions. They work on a time formula but they have no hesitancy in altering that formula when warned by the thermometer that alteration is called for. The heat of fermentation is dissipated by working the dough vigorously.

Dividing and Rounding.

From the fermenting room the dough goes to what is known as the divider, a machine which automatically cuts it into pieces of any desired weight. While these machines are designed to deliver their product in terms of weight, they are calibrated in terms of volume, a certain number of cubic inches of dough being presumed to weigh a certain amount. This matter is dependent upon the specific gravity of the dough and if a baker allows his dough to vary in that particular, his divider will not run true although it will not the fault of the divider.

In small shops the journeyman baker rounds into spherical form the freshly cut dough by rotating the balls between the palm of his hand and a flat table top. As a consequence, one of the most popular types of rounders approximates the old hand process and by means of a revolving cone resembling a huge umbrella surrounded by a fixed spiral chute, half circular in cross section and set very close to the revolving cone, the balls of dough are given a rotary motion. This machine takes the product of the divider and prepares it for the proofer.

In the Proofer.

After leaving the rounder the dough is allowed to rest a certain number of minutes in order to generate sufficient gas to put it in proper condition for moulding into finished loaves, the divider having squeezed practically all of the accumulated gas from the dough. The device wherein the dough is permitted to spend a few minutes of recuperation is termed a proofer, and many of them are exceedingly ingenius in design and operation. The smaller shops use a proofer which is nothing more complex than a series of drawers placed in a revolving cabinet. In shops where automatic machinery is employed the proofer is of either the belt or pocket type. In the latter the dough is permitted to rest quite undisturbed during the time that it consumes in traveling back and forth from the upper corner of the proofing machine to the lower opposite corner. All proofers are endless belt machines and quite simple of operation.

How the Molder Works.

From the proofing cabinet the balls of dough go to the molder. This aims to reproduce the action of the hand worker in stretching the dough into fairly flat form folding in the edges toward the middle and rolling it blanket-wise into the form of a cylinder. The molding machine is essentially a series of rolls set fairly close together and rotating toward each other, the second pair working faster than the first and thereby imparting a stretching effect to the dough and finishing with a thrust against a revolving drum run close to a concentric plate which performs the last step and produces a product ready for the pan. In some of the larger shops the molded loaves are dropped into the pans automatically, but in the great majority of cases that work is still done by hand. The molded loaves are allowed to rise in a steam room kept at about 37.5° C. (100° F.) with sufficient moisture in the atmosphere to prevent the formation of a crust.

Baking Pan Bread.

When the loaves have generated sufficient gas to increase their bulk practically 100 per cent they are baked in an oven held at about (245° C.) (475° F.). No doubt the draw-plate oven, in which the floor of the oven travels on rollers out into the middle of the room and allows one to "set" pans upon its surface with no exercise of skill, and the more recently perfected traveling oven, which is a huge endless belt of steel panels traveling through an oven a hundred

Photograph, Banner Grocers' Baking Co., Cincinnati.

SETTING HEARTH-BAKED BREAD IN REGULAR TYPE BAKERS' OVEN.

Photograph, Schulze Baking Co., Chicago.
BREAD FRESH FROM THE OVEN ON ITS WAY TO THE COOLING RACKS.

feet long, are both improvements over the cave-like bake oven of brick, but there still is attached to the older oven a certain picturesqueness which is undeniably lacking in the modern shops. An expert journeyman baker can by means of a long handled paddle, termed a peel, place in the oven two or three hundred pans, generally strapped together in sets of from four to six, containing risen loaves extremely sensitive to the slightest jar and all without a mishap or a single unnecessary motion. Setting bread in a bake oven is a task calling for dexterity, strength and the ability to withstand a high temperature.

The duration of the baking period depends upon the size of the loaf and, naturally, the heat in the oven. Small loaves bake considerably quicker than do larger loaves, although that matter is not one which is easily reduced to mathematics. The average time is about three-quarters of an hour for a large loaf and 25 to 30 minutes for the smaller loaves, and smaller miscellaneous pieces, such as "water rolls" and other types of bread not baked in steel. The so-called Pullman loaves, which are of square cross section and are baked in a closed pan, although possessing many excellent qualities, are not popular with the bakers for the two reasons that a large proportion of the heat of the oven is dissipated in heating the steel containers and also that it is impossible to gauge the process of baking by an occasional glance into the oven.

From the oven the baked loaves go, generally on a traveling belt, to a cooling room wherein they are placed upon racks to cool to a temperature proper for handling or for wrapping. Much bread is now wrapped and the custom is growing in popularity. This is done automatically, the machines used for many years for wrapping cakes of soap and other commodities having been altered sufficiently to take care of the somewhat irregular form of a loaf of bread. Generally waxed paper is used, although it has been severely criticized, and probably fairly so. It is better from many points of view to use some form of porous paper, as was proven by the experimentation a few years ago of Dr. Sadtler of Philadelphia.

The Use of Corn as a Breadstuff.

It may not be generally known to the housewife that cornmeal lends itself to the making of "light" bread in combination with wheat flour. It cannot, of course, replace wheat flour entirely, but may be used in any proportion up to 25 per cent of the total flour required and still produce an attractive loaf of bread. Although its volume may be somewhat smaller and its texture somewhat poorer than if made from all wheat flour, such a loaf will be light and spongy, with a rich brown crust, wholesome and very palatable.

Two methods for wheat-and-corn bread have been formulated and tested by H. L. Wessling, assistant chemist in the Bureau of Chemistry, U. S. Department of Agriculture. According to the one method the raw meal is employed directly in preparing the dough and no extra time or labor is required in making the bread this way. According to the second method the meal is partially cooked before introducing it into the dough. While this entails slight amount of additional time and labor, the result is a loaf of better quality which well repays the extra effort expended.

WHEAT AND CORN BREAD NO. 1.

(Enough for four loaves.)

Two and one-quarter pounds or two and one-quarter scant quarts of sifted bread flour.

Three-quarters pound or two and two-thirds cupfuls cornmeal.

Two cakes of compressed yeast.

Three level tablespoonfuls of sugar.

One and one-half level tablespoonfuls of salt.

About one quart of liquid (water, milk or equal parts of milk and water).

Three level tablespoonfuls of shortening, if desired.

If milk is used it should be scalded and then cooled until lukewarm. Less yeast may be used, but more time for rising will then be required.

Make a sponge with two pounds of white flour, the yeast, salt, sugar and the lukewarm liquid. Cover and set in a moderately warm place to rise, where it will be free from drafts and where the temperature will be between 80° and 88° F. When the sponge has become very light, which should occur within two hours, beat it up thoroughly, add the softened shortening, if this is to be used, and gradually work in the remainder of the wheat flour which has been sifted with the cornmeal. Knead the mixture until a smooth and elastic dough has been formed which is fairly soft, but not sticky. If the dough is too stiff or too soft, add a little more water or flour as required, kneading well after each addition. Cover and set back to rise again until double in volume, which will require from one to two hours. Knead lightly, divide into three or four approximately equal portions, reserving a small ball of dough for an "indicator." Place this ball of dough in a small jelly-glass having straight sides, which has been slightly warmed. Note the volume of dough in the tumbler and mark the glass at twice this volume.

Mold the loaves and place in slightly warmed and greased pans. Place these, together with the glass containing the "indicator," in the same warm place and let rise until the "indicator" shows that it has just doubled in volume. Then place the loaves in the oven, which should be at a good steady heat (400° to 425° F.), and bake 45 to 50 minutes.

WHEAT AND CORN BREAD NO. 2.

(Same proportions as for No. 1 except the liquid.)

Put 2⅔ cupfuls (¾ pound) of cornmeal into a double boiler or a vessel which can be placed over another one containing boiling water. Add to the meal 3½ cupfuls of cold water; mix thoroughly and bring to the boiling point, stirring frequently. Allow the meal to steam for at least 10 minutes, then cool it until lukewarm. To this scalded and cooled meal add the salt, sugar, 1 cupful of flour and the yeast rubbed smooth and mixed with 2 cupfuls of lukewarm water. Mix thoroughly, cover and set in a moderately warm place to rise as directed in method No. 1. When this batter (or sponge) has become very light, which will require about two hours, beat it thoroughly, add the softened shortening, if it is to be used, and the remainder of the white flour (2 pounds or quarts). Knead thoroughly until it is smooth and elastic. Should the dough be either too stiff or too soft add water or flour, a little at a time, working it in thoroughly, until the dough is of the proper consistency. Cover and set back in its warm place to rise until double in bulk. Then mold into loaves and finish as directed under method No. 1.

Government Strawberry Acreage Report.

The acreage in strawberries in Florida, Alabama, Mississippi, Louisiana and Texas is estimated by the Bureau of Crop Estimates of the United States Department of Agriculture to be 24,800 acres in 1917, as compared with 27,400 acres in 1916, a decrease of 2,600 acres, or 9.5 per cent. The cold wave of November 10-17, 1916, while it did much damage to late vegetable crops, had no damaging effect upon the strawberry acreage. The cold wave of January 29 to February 6, 1917, destroyed the immature fruit and bloom from Florida to Texas. Little damage was done to the plants, however, but the shipments were heavily reduced in sections from which the crop had started to move, pending the refruiting of the plants, which delayed the general movement from four to five weeks. The freeze in the early part of March again destroyed the fruit and bloom of strawberries from Texas to as far east as Mississippi.

Returns from truck crop reporters show the per cent of the strawberry crop usually harvested in each month from December to July to be as follows:

	Per Cent Harvested								
	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Total.
State.	%	%	%	%	%	%	%	%	%
New Jersey	....	....	....	....	....	3.1	94.2	2.5	99.8
North Carolina	....	....	....	....	10.0	55.0	35.0	....	100.0
Florida	7.6	21.8	27.8	27.7	12.5	2.5	....	....	99.9
Missouri	....	....	....	....	9.1	50.0	36.4	4.5	100.0
Kentucky	....	....	....	....	....	45.0	55.0	....	100.0
Tennessee	....	....	....	1.7	10.3	78.5	9.5	....	100.0
Alabama	....	....	....	14.3	31.0	41.4	13.3	....	100.0
Mississippi	....	....	....	1.7	33.8	46.7	15.0	2.8	100.0
Louisiana	....	....	8.3	25.0	50.0	16.7	....	....	100.0
Texas	....	2.1	6.5	21.8	27.9	26.8	12.9	2.0	100.0
Washington	....	....	....	....	....	6.2	63.8	30.0	100.0
California	1.0	0.3	0.3	2.1	10.0	19.3	36.4	18.6	88.0

Early Cabbage Acreage in Southern States.

The area planted to early cabbage in six southern states is estimated to be 33,500 acres as compared with 17,600 acres in 1916, an increase of about 90 per cent. This estimate is based upon reports to the truck crop specialist of the Bureau of Crop Estimates from Virginia, South Carolina, Florida, Alabama, Mississippi, and Texas, the principal early cabbage sections of the South. However, severe damage to the cabbage crop was sustained through the freeze of January 29 to February 6 in all of these states, and it is probable that the expectation of a crop has been reduced 50 per cent.

Milk As a Food.

Economy in the diet does not always depend upon limiting the use of certain foods, but sometimes it is a question of actually increasing the use of foods which furnish nutritive material at relatively low cost. Milk belongs to the latter class, and the housewife would do well to study its food value and decide whether her family is using as much as it should. The average person in this country uses only a little more than a half-pint of milk daily, and this quantity can very profitably be increased when safe milk is available.

Many people think of milk only as a beverage, but if they understood that it is in reality a nourishing food, they would increase their daily allowance.

We eat foods for two main reasons: First, to renew body wastes and promote growth by forming new tissues and fluids; and, second, to supply energy for carrying on body functions. Milk contains the body-building materials (protein and mineral substances, such as lime and phosphorus) and also supplies energy for carrying on the body functions.

The following table, compiled by specialists of the U. S. Department of Agriculture, shows the quantities of various foods needed to supply as much protein or energy as one quart of milk:

Protein.		Energy.	
1	quart of milk.	1	quart of milk.
7	ounces of sirloin steak.	11	ounces of sirloin steak.
6	ounces of round steak.	12	ounces of round steak.
4.3	eggs.	8½	eggs.
8.6	ounces of fowl.	10.7	ounces of fowl.

Another method of comparison is shown by the table below, in which the relative value of certain foods, as economical sources of protein, is given:

To Supply Protein at Equal Cost.

When milk is—	Sirloin steak must not be more than—	And eggs not more than—
7 cents a quart	16.3 cents a pound	17.6 cents a dozen
8 cents a quart	18.6 cents a pound	20.1 cents a dozen
9 cents a quart	21.0 cents a pound	22.6 cents a dozen
10 cents a quart	23.3 cents a pound	25.1 cents a dozen
12 cents a quart	27.9 cents a pound	30.2 cents a dozen
15 cents a quart	34.9 cents a pound	37.7 cents a dozen

According to this table, if milk is selling at 10 cents a quart, sirloin steak must sell as low as 23.3 cents a pound, and eggs at 25.1 cents a dozen, to supply protein at equal cost.

To Supply Energy at Equal Cost.

Milk at—	Is as cheap as sirloin steak at—	or eggs at—
7 cents a quart	9.9 cents a pound	9.3 cents a dozen
8 cents a quart	11.3 cents a pound	10.6 cents a dozen
9 cents a quart	12.8 cents a pound	11.9 cents a dozen
10 cents a quart	14.2 cents a pound	13.2 cents a dozen
12 cents a quart	17.0 cents a pound	15.9 cents a dozen
15 cents a quart	21.3 cents a pound	19.8 cents a dozen

It can be seen, therefore, that milk even at 15 cents a quart is a cheap source of energy as compared with sirloin steak and eggs.

In comparing foods it is necessary to consider both the protein and the energy furnished. Neither one alone can properly be used as a basis of comparison, nor is there any correct way to reckon the value of a food considering the total amount of nutritive elements.

It is very difficult to compare foods on the basis of the mineral matter they contain, but all physiologists agree that milk is extremely valuable from this standpoint. Indeed it is the food prepared by nature especially for growth and development of the young. A quart of milk a day is a good allowance for a young, growing child.

In addition to being an economical food, milk is usually easily digested, and requires no cooking or other preparation for the table. Specialists of the department have found also that it is digested better when taken with other foods.

Fermentation in the Production of Bread

By Geo. L. Teller
of the Columbus Laboratories, Chicago

THE making of leavened bread is among the earliest manufacturing processes known. Just how mankind first became acquainted with the phenomena of fermentation in bread making, we have no record, but we can readily understand, for we know that a mixture of flour and water soon undergoes change and takes on all the phases of fermentation with which we are now familiar. The Bible makes frequent mention of leavened and unleavened bread as used among the people of which it is the history, and the making of leavened bread was certainly practiced among the patriarchs, while bread of some kind was produced by those who lived in the stone age, many centuries earlier.

It was the earliest practice to seed the dough with yeast produced in a previous baking and saved over in the form of an old or sour dough, and this mode of introducing yeast in bread making is perhaps not yet entirely obsolete in the making of some kinds of bread. The next step was the production of a liquid yeast which could be saved over from day to day and introduced into the dough as required. Yeast of this kind was obtained by exposing to the air a liquid containing sugar and other suitable yeast food, such as might be supplied by fresh or dried fruits or by malt. In this manner it became seeded by wild yeast which is at all times floating about. Having obtained a vigorous growth of yeast in this manner, it was introduced into a similar culture preparation and the yeast produced in quantity as required. Sometimes hops were added to exclude bacteria and other forms of life which would work injury to the quality of bread produced. Yeast from brewing and possibly from wine production was also used in the making of bread. Later it was found to be more convenient to save the yeast by incorporating with it a material to make body, like coarse corn meal, and drying it at a low temperature to avoid killing the yeast, and much bread is now made by the use of "Yeast Foam" and other similar products. The highest stage in bread making began to develop with the production of compressed yeast, which is now so extensively used throughout the civilized world. This is yeast which has been grown in liquors suitable for the production of whiskey or vinegar. The yeast thus seeded in a liquor of this kind reproduces itself in great quantity and can by proper mechanical means be collected in a nearly pure condition and compressed into a mass containing a small proportion of water and capable of being kept in a cool place in an active condition for a period of many days.

A form of bread which has been extensively used in some sections of the country is known as salt rising bread. The leavening agent in this bread is not yeast, but is certain forms of bacteria which grow at a somewhat elevated temperature and which produces in a dough much the same effect as is produced by yeast. The method of producing bread of this character is to make an "emptyings" with scalded milk and some form of farinaceous material which generally includes corn meal. In earlier times when the process of milling by burr stones was in common use, a certain by-product in the mill, known as canaille, corresponding closely to shipstuff or feed middlings, as now produced, was used in the making of emptyings for this class of bread. This offal included a large quantity of germ of wheat, and this is exceptionally rich in sugars, amides and other foods suitable for bacteria and yeast. This, with the scalded milk, was used to make a thin batter. Baking soda and ginger were added in small quantity to keep the batter sweet and to exclude the growth of unfavorable bacteria. This mixture was then kept for several hours at a temperature somewhat above blood heat until it had become light and in an active state of fermentation. It was then used like yeast in the making of bread, which often required a period of several hours to develop. Bread of this kind was fine grained and had a distinctive butyric flavor, due to products resulting from this particular kind of fermentation. Soft wheat flours are especially adapted for making bread of this kind.

Having procured the yeast, the general course of fermentation in the dough is much the same. Any mixture of flour and water to which yeast is added will undergo more or less rapid fermentation. The addition of other products to the dough will accelerate this fermentation and may result in a bread of a different flavor and quality. Potato water and water from malt which has been crushed and mashed, bring to the dough a quantity of material which is especially suited for the growth of yeast. The malt product brings sugar, mineral phosphates and amide bodies, all of which are favorable to the growth of yeast. Potato water brings the mineral and amide bodies and the sugar is supplied by other sources.

Flour consists of starch, gluten and other albuminous matter, traces of sugars, gum, a little oil, and a very small quantity of mineral matter. From the standpoint of bread production by yeast fermentation, all of these probably play some important part. The gluten produces the framework of a loaf of bread. When flour is mixed with water the gluten binds the material together into a rubber-like mass, and when fermentation sets up within the mass, the gluten becomes filled with pockets of gas of greater or less size, which finally results in a peculiar cellular appearance which we see in baked bread. The starch serves as a filler to dilute the gluten and give body to the mass. The mineral matter stimulates and supports the yeast in its growth and development, and may in some way modify the character of the gluten. Some parts of the oil probably have a value in developing the flavor of the bread. The sugar is the chief source of the carbon dioxide and other products which assist in developing the dough. During the process of breadmaking there is developed in the dough a quantity of sugar in excess of that which was originally present. There are diastases present in all flours, which are capable of acting upon starch to make sugar out of it, and these diastases are acting during the time of fermentation with greater or less activity, depending upon various conditions, so that, in spite of the losses of sugar by fermentation, there is often more sugar in the baked bread than there was in the flour before making into the dough, even though no sugar had been added as such. This diastasic activity upon the starch takes place slowly upon starch which is in its natural condition, but more rapidly upon starch which has been cooked or gelatinized, so that with the addition of a starch of this kind to the dough it becomes a veritable sugar factory during the time of its fermentation, and by adding suitable quantities of a properly prepared material, it may be possible to have in the finished bread many times the amount of sugar which was present in the original flour, even without the addition of any sugar whatever as sugar. Generally, however, some sugar is added in making the dough.

The sugar in bread serves not only to supply the necessary food for fermentation, but also has an important value in giving color to the crust of the baked bread, for which reason it is necessary to have sufficient sugar present or developed to leave a small quantity of residual sugar when the dough is put in the oven, otherwise the loaf will not have that rich golden-brown which is characteristic of the crust of well baked bread.

Another important part which is played by yeast in the fermentation of a dough is to develop certain flavors which give the peculiar aroma and taste to yeast bread. These flavors are due to the formation of certain ethers, probably by the interaction of the alcohol produced by fermentation upon the fatty acids contained in the oil. Too short fermentation fails to develop these flavors, and by too long fermentation they are dissipated into the air so that we lose a great part of them. It is because of the development of these ethers that there is such a wide difference in flavor between a bread produced by yeast fermentation and bread or biscuit made by the use of baking powders or sour milk and soda.

When the dough ferments, a quantity of carbon dioxide gas is developed and there are produced at the same time a small quantity of certain organic acids which are important as an aid to the softening of the gluten, so that it becomes less resistant to the action of the gases and the steam which develops when the dough is put in the oven. In fact, one of the important steps in fermentation is to break down and soften the gluten by the development of acids in this way. Flours from different kinds of wheats and different grades from the same kind of wheat contain different quantities of gluten and also gluten of different qualities. The gluten of some flours requires much more treatment to soften it down than does the gluten of other flours. This is partly because of the amount present and partly because of the character of the gluten, so that different flours require different amounts of fermentation and this amount of fermentation is to a large extent dependent upon the amount and kind of gluten present. This increased amount of fermentation may be brought about in two ways. One by the addition of an increased quantity of yeast; the other by allowing a smaller quantity of yeast to act for a longer time. Thus, by using a sufficiently large quantity of yeast, it is possible to make substantially the same quality of bread in two or three hours' fermentation that will be obtained by using a smaller quantity of yeast and allowing the fermentation to continue from four to six hours.

During the process of fermentation the dough is allowed to expand to near the breaking point of the gluten, generally for two or three times, before it is moulded into loaves and put in the pan for its final proof. After each rise it is worked down so that the gas developed is allowed to escape. It is a peculiar characteristic of dough or moist gluten that when left to itself for a short time it becomes much softened, but when kneaded together it again resumes nearly its former rigidity. During the process of fermentation it requires a much longer period at first to reach its fullest extent in expansion than in the later stages. This is partly because the fermentation has at first not got well under way and partly because the gluten is in a more resistant condition. As fermentation progresses it becomes softened and gives way more quickly to the pressure of the gases produced. If the fermentation were not disturbed by frequent working, the character of the gluten would be more quickly destroyed and it would be no longer capable of sustaining the weight of the loaf when it is put in the oven. If the fermentation be allowed to continue too long, whether the dough is worked or not, there will be produced a greater quantity of acid than the gluten is able to absorb, and the gluten will lose its tenacity and the dough will take on an acid condition and smell sour. This same result may be brought about by allowing the fermentation to take place at too high a temperature.

When the dough is moulded into loaves and put in the pan, if it is put in the oven to bake too soon the gluten will not be sufficiently softened to allow the loaf to expand. If it be allowed to remain in the pan too long the gluten will be so much softened that it will give way in part and the pockets formed will become excessively large and the baked bread will be dark and coarse. These are points which the skillful baker knows how to guard against, so that when the work is properly done, the resulting product is a well raised and well shaped loaf of bread which, with flour of good quality, will have developed in it an agreeable flavor and a bright white or creamy appearance—qualities which make good bread so palatable and so attractive as an article of food.

Laboratory Control in Bread Making

By H. V. Cadwell

OF ALL the ingredients of bread the ones most subject to variations which would materially alter the character of the resulting bread are the flour and the yeast. The baker is also often required to test sugar, milk and fats. Of all these the flour is probably the most important. The flour must be subjected to a few preliminary tests to determine its quality, followed by an actual baking test to rate the value of the bread as judged by the consumer.

Color

Color is judged by comparing the sample at hand with comparatively fresh samples of flour made from wheats of known quality. In the case of flour milled from hard spring wheat the most desirable color is a very light cream, whereas patent flour from soft winter wheat is very nearly dead white. In either case a high patent is arbitrarily chosen as the standard and given a value of 100 on the scale and a flour, generally a clear, priced on the market at perhaps 80 per cent of the value of the patent, is correspondingly given a value of 80 on the color scale. Blends are made by combining carefully weighed portions of the two flours, the color value in each case corresponding to the relative amounts of high grade and low grade flour going to make the blend. For instance, a blend of equal amounts of the flour given 100 on the color scale and of the flour given 80 on the color scale are given a value of 90 on the color scale: one of 75 parts of the better flour and 25 parts of the less expensive flour is given a value of 95. It is customary constantly to keep on hand a full set of color samples mixed frequently and at all times protected from the action of the light and with a separate color for approximately every 2½ per cent of the market quotations from first patent to clear flours. Color is rated on the flour in what is known as dry, dipped, dough and bread state. A sample of the flour under test is placed on a glass plate, rubbed smooth with metallic "slick" and one side of the sample squared off. A sample from the color scale is treated in the same manner and the squared faces of the samples placed together. The whole is reslicked. If the colors differ materially it is indicated by a sharp dividing line between the two samples, and the test is repeated until the flour under test is exactly matched by one or another of the color scale blends. This is termed "dry color." The glass plate containing the two flour samples is then dipped in water and dried in a drying oven. The composite "slide" is again judged and recorded as "dipped color."

Samples of dough cut from the loaves of the flour under test and the control sample, just as they are put in the baking pans, are compared by laying them side by side on a glass plate with the fresh surfaces down, then pressing another plate on top and viewing the fresh surfaces through the glass. This comparison gives the "dough color." After baking, the color of the bread is compared and recorded as the "bread color."

Absorption

After color the next most important test is the absorption test, which tells the chemist the amount of water to use in making up his dough for the baking test. This is accomplished by adding small quantities of water to 30 grams of the flour from a burette and mixing until a suitable dough is obtained. The amount of water divided by the 30 grams of flour multiplied by 100 gives the percentage of absorption. For hard wheats an average value is about 63 per cent. The amount of absorption is of importance from the commercial standpoint, as the more water absorbed by the flour the more bread will it produce.

Protein

Protein is determined in the flour by the Kjeldahl-Gunning method, or by washing out the protein as gluten. In flour the larger part of the protein is present as gluten, which may be obtained in a fairly pure state by washing away the starch and soluble matter from the flour. Thirty grams of the flour are made into dough in a cup and covered with water. After standing one hour the dough ball is removed and washed under a hydrant until all the starch is removed. This is accomplished by working the dough with the hands in the stream of water over a screen of bolting cloth, being careful not to allow any particles of the dough to get away. The gluten ball is returned to the cup of water and left fifteen minutes longer, at the end of which period the ball is given another washing and then dried by gently pressing between the fingers. This is then placed on a dried and weighed piece of cardboard and weighed. This weight divided by 30 and multiplied by 100 gives the percentage of wet gluten. The card and gluten are then dried in a drying oven at 100° C. until it ceases to lose weight. The weight of dry gluten divided by 30 and multiplied by 100 gives the percentage of dry gluten in the flour.

During the washing the physical properties of the gluten, such as color, elasticity and hardness, are noted. A good gluten should be firm, elastic, creamy white and not unduly sticky.

A fair indication of the quality of the gluten may be obtained by the use of a small baking cylinder. This piece of apparatus consists of a separable copper cylinder provided with a plunger, whose piston is graduated so as to represent the volume of the cylinder in cubic centimeters. When in use a small amount of dough, generally 25 gms., is placed in the cup, which forms the lower part of the cylinder, and the capacity of which is 25 c. c. This miniature loaf of bread is then permitted to rise and after a certain length of time is placed in a "quick" oven, the reading of the piston at the time of placing the cylinder in the oven being noted The additional height to which the piston is driven by the expanding loaf during baking represents the expansive force of the gluten in the flour. Comparative results obtained by the use of this instrument run parallel to qualitative gluten tests obtained by much more tedious methods.

Acidity

Unsound wheats that have fermented or soured in storage will contain more than a normal amount of acid. A determination of the percentage of acid will give a measure of this unsoundness. Extract 18 gms. of flour with 200 c. c. of cold, distilled water which has had the carbon dioxide removed by boiling for 90 minutes. The flask is shaken frequently through this period and finally allowed to settle for 30 minutes. The supernatant liquid is decanted into a filter until 100 c. c. of the clear filtrate is obtained. This 100 c. c sample of the flour extract is then titrated with twentieth normal potassium hydroxide. Phenolphthalein is used as an indicator and the results are stated as per cent of lactic acid. Following the above method each cubic centimeter of twentieth normal potassium hydroxide is equivalent to 0.0045 gm. of lactic acid, or 5/100 of 1 per cent.

Ash

The ash determination on flour is of value mainly as an indication of the cleanness of the flour. A good flour should contain about 0.35 per cent ash. The amount of ash is determined by weighing 5 gms. of the flour into a weighed crucible and burning off the organic matter at a dull red heat. The ignition is repeated until the weight of ash is constant. The weight of inorganic residue multiplied by 20 gives the percentage of mineral matter in the flour.

Baking Test

The following formula is used considerably, but some laboratories modify it by adding 8 or 9 gms. of shortening:

Flour	310 gms.
Sugar	15 gms.
Yeast	10 gms.
Salt	4 gms.

The yeast is added to half of the water and the salt to the other half. The sugar and flour are mixed and then the solutions of yeast and salt. It is best to mix the dough in a mechanical mixer in order that all doughs may be mixed in the same manner. When the dough has been thoroughly mixed it is placed in a jar and placed in a fermentation cabinet. At the end of 45 minutes the dough is removed from the jar, kneaded lightly and returned to the cabinet. This operation is repeated 15 minutes later and again 75 minutes from the time it was first placed in the cabinet. The dough is then moulded into a loaf and placed in the baking tins. For a dough approximating 575 gms. the tins should have the following dimensions: 3½ by 6½ inches at the top, 3 by 5½ inches at the bottom and 5½ inches deep. The dough is allowed to rise until gas bubbles appear on the surface and is then baked at 195° C. Approximately 30 to 35 minutes are required for most loaves. The cooled loaves are weighed and their volume determined by displacement of flax seed. The texture, color, odor and volume are scored on the finished loaf.

The flavor, lightness and odor of the bread depends largely upon the quality of the yeast, which should be tested carefully, as it deteriorates very rapidly.

When fresh, compressed yeast should have, according to Leach, "a creamy, white color, uniform throughout, and should possess a fine, even texture; it should be moist without an acid taste. Its odor is characteristic and should be somewhat suggestive of an apple. It should never be cheesy, such an odor indicating incipient decomposition, as does a dark or streaked color." In addition to examination by the senses of sight, smell, taste and touch, there are but two tests usually made on yeast. The first is a microscopical test to determine the percentage of dead cells and the other a fermentation test to measure the available carbon dioxide.

Microscopical Test

Mix a little yeast with water and place a drop of the mixture on a glass microscope slide under the microscope and mix in a very little dilute aniline dye, such as 1 gm. of fuchsin in 160 c. c. of water containing 1 c. c. of alcohol. After the cover glass is placed over the drop and the microscope adjusted the small circular and oval yeast cells will at once become apparent. The dead cells will be stained by the dye, while the living cells will be colorless A rough estimation of the percentage of dead cells may be made in this manner.

Fermentation Test (Volumetric)

The yeast is weighed up and placed in a clean bottle of about 16 oz. capacity with a sugar solution suitable for fermentation. This is then tightly stopped with a one-hole rubber stopper with a short length of glass tubing passing through it and connected by a piece of rubber tubing with a similar tube and stopper in the top of a graduated gas collector with an air trap connected to the lower tubulation, which has previously been filled with water. The bottle containing the yeast is then placed in a bath of water about 30° C. and allowed to ferment for six hours. As the carbon dioxide is evolved it is drawn over into the graduated cylinder and an equivalent amount of water is delivered from the trap. The difference in the readings on the graduated cylinder gives the volume of carbon dioxide evolved.

Sugar

The white crystallized sugar is one of the most pure substances entering into the bread, but cheaper sugars are often used, which should be tested when doubtful. A few simple tests, such as the color, taste, smell, action on litmus paper and the presence of iron salts will usually suffice.

High class sugars in aqueous solution should not change blue litmus to red, nor give the following reactions for iron salts:

(1) Add a few drops of nitric acid to some of the sugar solution in a test tube together with a little ferrocyanide of

potassium. A blue coloration or precipitate indicates iron salts.

(2) Add a few drops of nitric acid to some of the sugar solution with a little sulphocyanide of potassium. A pink or red coloration indicates iron salts.

Low grade sugars are often improved in color during the manufacture by the addition of blue ultramarine. This may be detected by allowing a strong solution of the sugar to stand for some time, when a faint blue sediment settles out.

Milk

The milk used in the baking should be tested frequently for the specific gravity, total solids and fats. The specific gravity will indicate any adulteration in the form of water and is obtained with sufficient accuracy with a hydrometer or some form of the hydrometer with special scales known as Lactometers. The average specific gravity of milk is about 1.032, but will vary from 1.027 to 1.035.

Total solids are determined by evaporating 5 gms. of the milk sample in a shallow aluminum milk dish to dryness on a steam bath and reweighing. The weight of the solids is obtained by difference and this weight divided by the weight of milk taken multiplied by 100 gives the percentage of total solids in the milk.

Fat is most easily and rapidly determined by the Babcock process. This consists of adding 17.5 c. c. of commercial sulphuric acid to 16.6 c. c., or 18 gms. of the milk in a special bottle with a graduated neck. The bottles are then placed in the pockets of a centrifuge and whirled for at least five minutes. Hot water is then added up to the neck of the bottles, which are again whirled for about two minutes. Enough water is then added to drive the fat into the neck of each bottle and a final whirl of one minute given, after which the bottles are removed and the percentage of fat read from the graduated neck.

Equipment:

GLUTEN TESTS.

Gluten bowl, $0.11; gluten cup	$ 0.15
Spatula for gluten mixing	.68
Sieve without bottom with brass ring for bolting cloth.	.72
Bolting cloth, phosphor bronze wire, 40″ wide, No. 120, 96 mesh, per foot	3.38
Watch glasses, 3½″, for weighing gluten, per dozen	1.08
Zinc plates, 2½″ square, for gluten weighing, per set of 12	1.00

ACIDITY TESTS.

Erlenmeyer flasks, Pyrex glass, 500 c. c.	$ 0.29
Filter paper, 4″, per package of 100	.18
Funnel, 3″	.26
Graduated cylinder, 200 c. c.	.75
Pipette, 100 c. c.	.50
Burette, 50 c. c. in tenths, for pinch clamp	1.00
Pinch clamp	.08
Volumetric flask, 100 c. c.	.85
Steam heated automatic still	28.00
Burette stand	2.25
De Khotinsky constant temperature water bath, capacity 3 liters	45.00

(For sodium hydroxide, phenolphthalein and alcohol, see list of chemicals.)

BAKING TESTS.

Fermentation jar, 1 gallon	$ 0.40
Mixing crock, ½ gallon	.30
Volumetric flask, glass stoppered, 1,000 c. c.	1.25
Sponge case, Despatch electric, 48x24x14″	40.00
Graduated fermentation jar	2.25
Electric baking oven	43.25
Volume of loaf apparatus	25.00
Baking pans, No. 7, per dozen, $1.00; No. 48, per dozen	1.50
Spatula, 6″, for mixing doughs	.45

GENERAL APPARATUS.

Apron	$ 0.72
Balance, analytical	54.00
Balance, bakers' scale	7.20
Weights, precision	17.00
Beakers, in nest Nos. 1 to 4	.74
Botties, dropping	.17
Bottles, reagent, 4 oz., per dozen	2.25
Brush, burette	.10
Brush, camel's hair	.15
Brushes, test tube, per dozen	.50
Burner, Bunsen	.30
Burner, Tyrrill's	1.00
Clamp, burette	.30
Clamp holder	.16
Corks, Nos. 0 to 11, assorted, per gross	.45
Cork borers	.90
Filter paper, 4″, per package of 100	.18
Forceps, steel, 5″	.09
Jar distilled water, 5 gallon	2.00
Labels	.08
Mill	6.00
Mortars, porcelain with spout and pestle, glazed outside, rough inside. Outside diameter, m. m., each, 80, $0.29; 110, $0.40; 130, $0.50; 150, $0.70; 175, $0.90; 260	2.23
Paper, litmus, blue, per quire	0.60
Paper, litmus, red, per quire	.60
Sieves, set 10 mesh to 200 mesh	10.80
Stoppers, rubber, per pound	1.60
Spatulas, 5″	.35
Support, funnel	.72
Support, test tube	.38
Tongs	.20
Tubing, glass, per pound	.44
Tubing, rubber, per pound	1.50
Wire, gauze, asbestos center, 5x5″	.09
Microscope, 2 eye-piece, triple nose-piece, oil immersion	58.95
24 microscope slides	.25
½ oz. cover glasses, ¾″ round, No. 2	.65
1 gas measuring bottle	4.00
1 bottle, narrow neck, 16 ozs	.07
1 bottle, wide neck, 8 ozs	.05
1 Babcock milk test outfit, two bottles.	

CHEMICALS.

½	oz.	Fuchsin crystals	$ 0.80
1	lb.	Sugar	.15
4	ozs.	Ammonium phosphate	.30
4	ozs.	Potassium phosphate	.45
6	lbs.	Hydrochloric acid, C. P.	1.00
9	lbs.	Sulphuric acid, C. P.	1.15
1	gal.	Ethyl alcohol (95%)	4.00
4	lbs.	Ammonium hydrate, C. P.	.80
1	lb.	Barium chloride, C. P.	.55
1	lb.	Calcium chloride (anhydrous for desiccators)	.27
1	oz.	Cochineal (powdered)	.14
1	lb.	Mercury (metal)	2.10
1	oz.	Mercuric oxide, C. P.	.32
1	oz.	Methyl orange	1.90
1	lb.	Paraffine (soft)	.13
1	oz.	Phenolphthalein	2.00
1	lb.	Potassium acid sulphate, C. P.	1.30
1	oz.	Potassium permanganate, C. P.	.30
1	lb.	Postassium sulphide, C. P.	1.80
1	lb.	Pumice stone (lumps)	.13
5	lbs.	Sodium hydroxide (sticks, pure)	2.60
1	lb.	Zinc (granular), C. P.	.70

Care of Confectionery

By Walter C. Hughes,
Secretary, National Confectioners' Association.

A series of six articles which will be published monthly relative to the above subject, the first dealing with the subject in a general way; second, with Chocolates; third, Hard Boiled Candies; fourth, Nut Candies; fifth, Marshmallow, Fudges and some other special kinds; and the sixth, a general summary of the entire subject and suggestions relative thereto.

THE days of happy-go-lucky and go-as-you-please methods of successful retail merchandising have long since passed away, never to return. There was a time when success came because it could not stay away, but success, if such it could be called, was not the result of the efficiency of the business methods employed. The same methods used in the present day of keen competition would assure failure and bankruptcy. The merchant, to be successful, whether large or small, whether employing thousands or only one employee, must study his business and know all about it, even to the smallest detail. The retailer who combines a thorough knowledge of the business with a clear apprehension of what constitutes successful merchandising is the one who makes a steady gain and wins success.

Successful merchandising is not merely selling the goods. It includes intelligent and discriminating buying and thorough knowledge of the costs of the goods bought and the proper care of the goods purchased. An article well bought is half sold and the other half of the selling game is the proper care of the article bought. Buy right, care right, sell right, epitomizes successful retail merchandising.

Buy right. Dead stocks and slow sellers are profit destroyers. They are the direct result of haphazard buying. Buying to be a good fellow is poor business. Overstocking the retailer is a business crime for which the manufacturer or jobber is very often directly responsible. Often the desire to sell a retailer is prompted solely by the ambition to sell goods to the other fellow's customer, without a thought as to whether the customer really needs the goods or can sell them before they become dead stock. The wise retailer will watch his stock and will buy only as he sees he needs the goods.

Buy frequently. Conservative buying as to quantity and kinds will keep fresh stock on your shelves and make and keep satisfied customers. Fresh goods, of good quality, at reasonable prices, with an attractive store and courteous treatment intelligently given, make the kind of customers who always come back satisfied, the kind that build up the business.

Watch your stock; in other words, take good care of it. Sell your goods in the order in which they are received, the oldest stock first. When a new shipment is received, if you have some of the old goods in stock, always place them in front of the goods just received, and by so doing you will keep your stock nice and fresh and have no stale goods which have been overlooked. Do not have too large a variety. Confine your efforts to a few reliable brands and always with the single-minded purpose of keeping up the quality. Do not buy inferior quality just because the price is low; that is why the price is low. To make a low price, something must be left out; that something is just what the customer wants left in *and that is quality*. Quality and service courteously and intelligently given are the retailers' biggest business assets.

The indifference to the importance of the care of confectionery is due to the failure to properly classify confectionery in its relation to other merchandise and food products. First and most important of all, candy is a food, a very valuable food. The food value of candy, particularly the kinds consisting wholly or in part of chocolate, are exceptionally high and are exceeded only by a few other foods, such as butter and cheese.

The food value of any food is estimated in calories. A calorie is the amount of heat which would be required to raise a pound of water 4° F. Using a mechanical illustration, a calorie of heat, transformed into mechanical power, would life one ton a distance of approximately 1½ feet. In other words, the food value of any food is equivalent to the energy which the body could obtain from a given weight of that food. The calories in a pound of chocolate are approximately equal to the calories in a pound of lean meat, and the calories in a pound of sugar are equal to the calories in 1½ pounds of white bread

Candy by many retailers is considered as so much merchandise, without any thought whatever that it is a food and should have the same care and attention as any other food product. You would have little regard for the intelligence of the retail grocer who would display packages of butter as indiscriminately as if they were so much hardware or who did not have an ice-box or a refrigerator in which to keep them sweet and fresh in the summertime. The retail grocer knows that butter needs special care and attention. He knows that if he does not give it special care and attention it is going to be unsalable and that he is going to lose money. He also knows that all the food products which he sells must be neat, clean and attractive or the customer will not buy them. They require special care. A customer may be indifferent to the cleanliness of the store in which he buys a box of tacks or a saw, but if it is something that he and his family are going to put into their mouths and consume as food, it will make a great deal of difference as to the appearance of the store and the condition of the stock, as to where he will make his purchases.

We recognize the fact that food products and where they are sold must be neat, clean, attractive, sanitary and kept with due regard to all these necessary requirements. We have failed to realize that candy deserves just as much careful, thoughtful attention as any other food product. Certain kinds of candy require more care than other kinds, particularly during certain seasons of the year, such as the summer and winter months. The indifference to these special requirements is frequently the reason why the retailer asks the manufacturer or jobber to "take back" goods which are unsalable, through no fault of the manufacturer, but due entirely to the ignorance or carelessness of the retailer in not properly taking care of them. Retail confectioners should wake up to the fact that it is *food—food—food* which they are selling and have due regard for the special care and requirements of the different kinds of food which they have in stock.

We have grown accustomed to the idea that we must have open displays of candy in order to attract the eye and create a desire to eat. Large displays of candy are neither attractive to the eye, nor tempting to the palate. A small, carefully selected display of a few kinds is supported by business experience, as being in every respect a surer appeal to the prospective customer and, from an economical and sanitary point of view, far superior. Get away from the idea that it is necessary to make a "big display." The most attractive show windows are those in which there are only a few well chosen articles, attractively arranged. Multiplicity begets confusion. Lasting impressions are made when the number is few and the eye has time to take in all the details. The show windows and the show cases should be arranged with due regard to these well established principles of successful retail merchandising. They are the most important of all, for they have a direct influence on the attitude of the retailers in reference to the care of confectionery.

With the Wholesale Grocers

National Grocers' Eleventh Convention.

All wholesale grocers, non-members as well as members, are cordially invited to attend the eleventh annual convention of the National Wholesale Grocers' Association to be held during the week of May 14 at Washington, D. C. The headquarters of the association will be at the New Willard hotel. It is expected that the coming meeting will be the most important and instructive of any in the history of the association.

Uniform Canned Food Contracts.

A "contracts committee," called by President Theodore F. Whitmarsh of the National Wholesale Grocers' Association to confer with representatives of concerns in various parts of the country for the purpose of establishing uniformity in canned food sales contracts, obtained and submitted for approval fifteen forms covering the various branches of the trade for sales to retail grocers, purchase of canned foods, and suggested changes in the different contracts. These forms were published in the Special Bulletin of the association, together with a letter written by the President to the wholesalers upon the purpose of the committee and advising them of the necessity of adopting forms of contracts which shall become recognized generally as standard.

The various forms suggested by the committee carried conditions governing each contract and lines for specifications and comments. A form for a future purchase contract was also submitted, with provisions governing shipment, insurance and legal clauses and regulations. The articles upon which these forms were based were California dried fruits, beans and nuts and Michigan beans.

Rules for the conduct of arbitrations in cases of misunderstandings and disputes were also submitted by the committee, which with a form of agreement had been approved by the principal grocers, brokers' and canners' associations.

Special Committee on Metric System.

The rapid increase of interest in the metric system propaganda has necessitated the appointment by the National Wholesale Grocers' Association of a separate committee to handle the constantly increasing work. This committee consists of Fred R. Drake, Easton, Pa., chairman; Arthur P. Williams, New York City, and Jacob Blumlein, San Francisco. Until now the metric system propaganda has been conducted by the pure food and legislative committee of the National Wholesale Grocers' Association, but the work has grown too voluminous to be handled in addition to the committee's other duties. The members of the new committee are ardent advocates of the metric system cause and well equipped for the work in hand.

Clean Store Campaign of Wholesale Grocers' Association.

"Clean up and stay clean" is the slogan of the National Wholesale Grocers' Association in a campaign it has launched for the purpose of moving the wholesalers as well as the retailers to further efforts in keeping their establishment in good order. The association has issued a neat little leaflet containing in brief paragraphs advice and suggestions regarding the handling and keeping of goods and fixtures in the most sanitary and attractive manner. It urges retailers to clean up their stores by May 1, 1917, and keep them so, and there is much that is commendable in the admonitions it gives them. The leaflets are distributed free through the jobbers and are easily obtainable through them.

McNeil & Higgins' New Plant.

Chicago will soon have a splendid addition to its great wholesale grocery houses in the mammoth new plant in course of erection by the McNeil & Higgins Company at 251 to 315 East Grand avenue. It will be an eight-story building 400x100 feet backing on the North-Western Railway tracks, having 800 feet of trackage facilities, which will permit of loading or unloading wagons and trucks. The plant will have subway connection and will ship directly from its interior all goods going out of the city. Local delivering will be handled through two large concourses cut in the Grand avenue side of the building. The cost of the structure will, it is said, total about $400,000, and it will be one of the most complete and up-to-date plants of the kind in the country.

The new building will be especially equipped with all modern facilities for handling foods for the table, and the company maintains a strong buying organization of experienced men for the sole purpose of gathering foods from all parts of the world. The officers and directors of the company are: President, Malcom McNeil; vice-president, John McNeil; secretary-vice-president, Gordon McNeil; secretary, Oscar B. McGlasson, past president of National Wholesale Grocers' Association; treasurer, J. Leo McNeil; Marvin McNeil, Robert J. Roulston, Walter W. McNeil.

With Counsel.

Under this heading are given the gist of legal opinions given by counsel for the National Wholesale Grocers' Association. Among those recently published of interest to those in the food industry are the following:

SULPHUR DIOXID.

Q. Is there any federal limitation on the amount of sulphur dioxid that may be used in the preparation of food products?

A. The latest rulings of the United States Department of Agriculture with respect to the question you raise are found in Food Inspection Decisions 76 and 89 of the United States Department of Agriculture.

Food Inspection Decision 76, issued July 13, 1907, provides that pending further investigation (the results of which have not been announced by the U. S. Department of Agriculture at this date, February 16, 1917):

* * "the Department of Agriculture will institute no prosecution in the case of the application of fumes of burning sulphur (sulphur dioxid), as usually employed in the manufacture of those foods and food products which contain acetaldehyde, sugars, etc., with which sulphurous acid may combine, if the total amount of sulphur dioxid in the finished product does not exceed 350 milligrams per liter in wines, or 350 milligrams per kilogram in other food products, of which not over 70 milligrams is in a free state."

Food Inspection Decision 89, issued March 5, 1908, provides among other things:

"No objection will be made to foods which contain the ordinary quantities of sulphur dioxid, if the fact that such foods have been so prepared is plainly stated upon the label of each package.

"An abnormal quantity of sulphur dioxid placed in food for the purpose of marketing an excessive moisture content will be regarded as fraudulent adulteration, under the Foods and Drugs Act of June 30, 1906, and will be proceeded against accordingly.

"Food Inspection Decision No. 76, issued July 13, 1907, is hereby amended accordingly."

You will observe that Food Inspection Decision 76 now stands amended so that "the ordinary quantities of sulphur dioxid" may now be used under the federal law. The term "ordinary quantities" has not been defined by the Government.

BULK SALES ACT (PENN.)

Q. Under the Pennsylvania Bulk Sales Law when a purchaser has given the required notice of five days is he at liberty to pay the purchase price to the seller?

A. After the prospective purchaser has given the personal notice to each of the creditors of the seller at least five days before the consummation of the sale as prescribed in the Pennsylvania Bulk Sales Act he is at liberty to complete the sale and pay the money to the seller, and cannot, we believe, be disturbed in his possession of the goods by the creditors of the seller unless there has in fact been fraud. In other words, the position of the purchaser who buys goods in bulk and at a fair valuation is not affected by the statute unless he falls to comply with its terms as to the giving of notice.

The specific requirements which must be followed by the prospective purchaser in giving notice under the law are as follows:

The purchaser must, in good faith and for the purpose of giving notice as required by the law, make inquiry of the seller and receive from him a list in writing of the names and places of residence or business of each and all of his creditors, and must then give at least five days' personal notice of the proposed sale to each of the creditors of the seller as appear on said list or must use reasonable diligence to cause personal notice to be given to them or must deposit in the mail a registered letter of notice, postage prepaid, addressed to each of the seller's said creditors at his postoffice address.

Even if the prospective purchaser does not comply with the provisions of the law as above stated with respect to giving notice, his purchase cannot be questioned by the creditors of the seller because the provisions of the law were not complied with unless an action is commenced by one or more of the creditors within ninety days from the consummation of the sale.

GUARANTY.

Q. Does the guaranty given under the food law protect if the guarantor has gone out of business?

A. The guaranty for which the United States Food and Drugs Act, June 30, 1906, makes provision is primarily intended by the statute to serve as documentary evidence upon which the person holding the guaranty may relieve himself from prosecution under the statute by presenting to the government this guaranty, signed by the person from whom he purchases, and containing the address of such guarantor. The person holding such a guaranty is fully protected under the statute notwithstanding the guarantor may not be financially responsible.

Furthermore, the fact that the guarantor may be out of business at the time the sample is taken from you, or at the time prosecution is attempted, does not affect your rights under the guaranty. That instrument, if it was originally valid under the statute, still continues to protect you as to all goods purchased thereunder.

It would, of course, be inadvisable, for various reasons, to purchase goods with the knowledge that the seller-guarantor was not financially responsible; we take it from your letter that at the time of purchase the financial responsibility to the guarantor was not in question or was not known to be so.

GUARANTIES.

Q. Where the manufacturer attaches buyer's labels should he not be liable for misbranding or adulteration?

A. Under both state and federal food laws and regulations the line between adulteration and misbranding is quite impossible of determination in many cases. A product that would be regarded as adulterated under a certain label would be neither adulterated nor misbranded if sold under another label. This association has taken the position that since the manufacturer is the one who has the best knowledge as to what the package contains, he should be liable for both misbranding and adulterating, even though buyer's labels are used, provided such labels are attached by the manufacturer. In short he should not put labels on a product that is not properly and legally covered by the labels that the buyer has furnished. A form of guaranty printed on yellow paper has been recommended by this association for use in buying canned goods. Copies have been supplied to all members. This form of guaranty was agreed upon between representatives of this Association and the National Canners' Association.

Two other forms of guaranty printed on blue and white paper respectively are recommended by this Association for use with respect to products other than canned goods. Extra copies of each form of guaranty may be obtained upon application to the Secretary.

BRANDY PEACHES—PROHIBITION.

Q. May brandy peaches and marrons be sold in Virginia under the prohibition laws of that State?

A. The Virginia statute expressly prohibits the sale of fruits preserved in ardent spirits and beverages containing more than one-half of one per cent of alcohol by volume. The sale of flavoring extracts, however, is not prohibited for cooking and culinary purposes only.

It appears that the express provisions of the statute leave no room for the administration officials to issue regulations exempting certain food products. When it is realized what far-reaching effects a strict enforcement of the statute as to food products would have, it is of course possible, although very unlikely, that the officials in charge may be prevailed upon to omit to enforce the letter of the statute as to food products not used for beverage purposes. In that event, however, the situation would always remain uncertain and, in our opinion, it would be inadvisable to attempt to sell the products mentioned in this state. Therefore, unless you so desire, we shall not take up the question with the officials in Virginia.

Arbitration Awards.

For some time past it has been the custom of many members of the National Wholesale Grocers' Association to leave to arbitration the decision of controverted matters. Among recent awards the following are of interest to the general public, as an indication of how this sort of settlement works out:

DISPUTE ON DELIVERY.

A dried fruit brokerage company of Chicago bought of a California packer a carload consisting of 1,600 cases of 45/12's Seeded Malaga or Feherzago Raisins. Dispute arising as to delivery, the subject was referred to the local Arbitration Committee, who, after careful consideration, decided that the delivery was in accordance with contract and the buyer to pay arbitration charges.

GOODS NOT UP TO CONTRACT.

A wholesale grocer of Massachusetts purchased from a New York packer 700 dozen cans of Fancy Stringless Beans of various sizes and grades.

These beans were delivered in two shipments to the buyer. The first consisting of 210 dozen was accepted upon delivery. The second shipment was examined upon arrival, and the buyer reported to the seller that the bean were not satisfactory and not in accordance with contract.

After going thoroughly into the matter, the Arbitration Committee decides as follows—that a portion of the second shipment was not in accordance with the contract and the buyer is therefore entitled to an allowance of 5c per dozen on No. 2 tins; 25c per dozen on No. 10 tins.

The buyer is not sustained in claim for expenses accruing on shipment, such as warehouse charges, sheriff's fees, etc. The committee further commend the canner for the unusual delivery which they made on the contract in a season when short deliveries of Refugee Beans has been the rule on almost every sale made. Arbitration costs were charged against the canner.

QUALITY QUESTIONED.

A Michigan bean dealer bought from a Missouri wholesale grocer a car of pink beans. The delivery was not satisfactory and the subject referred to St. Louis Arbitration Committee, who took samples from twenty (20) bags of beans in the carload. After carefully examining the samples drawn, the unanimous opinion was that the beans were a proper delivery on contract, same being equal to this season's average deliveries.

WET RAISINS.

A Missouri broker purchased from a California packer 100 boxes of 45/12 Choice Seeded Raisins and 100 boxes 36/16 Choice Seeded Raisins. The purchaser claimed upon receipt of the goods that the Raisins were too wet, from being over-processed.

Being referred to the Arbitration Committee of St. Louis, who examined twenty-five boxes of each, the decision was reached that the shipment of 36/16's was a proper delivery on the contract; but found the 100 boxes of 45/12's Choice Seeded Raisins (No. 66) to be very wet, the moisture having stained many of the cartons, therefore the committee sustain the purchaser in rejection of the 100 boxes 45/12's (No. 66) Choice Seeded Raisins.

FAULTY CANNED CORN.

Under contract between a wholesale grocer of Missouri and a packer of Maryland, through a broker, a shipment of 850 cases of corn was made by the packer to the buyer. Upon arrival of the corn the buyer examined the goods and claimed that the corn was not equal to samples submitted before contract was entered into. Upon being referred to the local Arbitration Committee, who carefully examined contents of twenty-four cans taken from the same number of cases, it was decided that the corn delivered is not equal to the samples of corn submitted, quality being very irregular, and some cans having the appearance of being scorched, therefore the complaint of the buyer is sustained by the Arbitration Committee; and further, that there is a difference of ten (10) cents per dozen in value between the corn shipped and the samples of corn submitted.

Food Exports Decreasing.

Food exports generally from the United States fell off $43,000,000 last year. Department of Commerce statistics recently published show their value to have been $745,000,000, compared with $788,000,000 in 1915. Meat and dairy products showed increases, but breadstuffs fell off sharply.

Corn was the only grain showing an increase, while wheat fell off 51,000,000 bushels and flour 1,300,000 barrels. Beef showed decreases in canned, fresh and pickled, but bacon, hams and shoulders exports increased 83,100,000 pounds and pork 22,000,000 pounds.

New Turkey Industry.

California and certain sections of other western states have a new industry that, according to the 1915 Yearbook recently published, has sprung from the decreasing production of turkeys on the farms. It is turkey ranching, and from all accounts it promises to become an important factor in the poultry supply of the West, if not of the entire country. In the sections where the industry has taken hold a few persons are raising a thousand or more turkeys a season. The ranches are located where the range is unlimited and the natural food of the turkey, such as grasshoppers and other insects, green vegetation, and the seeds of various weeds and grasses, is abundant, and where acorns, of which turkeys are very fond, are plentiful. But little grain is needed for fattening in the fall. The large flocks of turkeys are managed much like herds of sheep, being taken out to the range early in the morning and brought home to roost at night. They are herded during the day by men, on foot or horseback, and by trained dogs.

FOOD REVIEWS

ARMOUR'S OATS.—Manufactured by Armour Grain Co., Chicago, Ill. Price, in carton, 10c.

THIS is a new production, being the first appearance of the Armour organization in the retail cereal field. The Armour Grain Company has for many years been a prominent factor in the grain market.

CHEMICAL ANALYSIS OF ARMOUR'S OATS.

		Oat kernel without husk.*	Oatmeal* (typical).	**Armour's Oats.**
Moisture	*per cent*	6.9	7.9	6.18
Protein	*per cent*	14.3	16.0	16.1
Fat	*per cent*	8.1	6.5	6.7
Fiber	*per cent*	1.4	1.5	1.34
Carbohydrates, other than fiber	*per cent*	67.1	66.1	67.76
Ash	*per cent*	2.2	2.0	1.92

As the chemical analysis shows, Armour's Oats are practically identical with the figure for this product, accepted as normal by food authorities. Oats, or *Avena sativa* L., are unique among cereals in regard to protein and fat. They have a food value of 1,800 Calories to the pound; in other words, a 10c package of Armour's Oats is equal in fuel value to 7.5 to 10 ozs. of fat bacon or butter, 1.5 to 3 lbs. of beefsteak or 3 to 5 lbs. of lean fish. Of this total fuel value about 300 Calories to the pound are in the form of protein. Well cooked oats are well digested. They are slightly acid in nature—as are all cereals.

That the stock from which Armour's Oats are made is well cleaned before processing is evidenced by examination of the product under the microscope. The process of rolling oats consists in parboiling the cleaned grains and then crushing between heated steel rolls set very close together. In this way the product is partially cooked and, in consequence, the task of preparing it for the breakfast table is rendered more simple.

The Armour Grain Company, after years of research, has perfected its own distinctive milling process. Armour's Oats are packed direct from the flaking rolls into sanitary packages No belt conveyors or storage bins are used in handling the finished product. This is a radical departure from the customary practice.

Comparatively little of our immense oat crop is used as a human food—and it is one of the best foods in existence. By its widespread campaign of suggestion and education for the use of oats in many forms of appetizing dishes for all three meals, the Armour organization is encouraging an increased consumption of this nutritious food. It is rendering an economic service by promoting a more general use of a relatively inexpensive staple food of guaranteed quality. "From Field to Table, an Unbroken Chain of Quality" is the apt slogan being featured in the marketing plans for Armour's Oats.

Because of its extensive grain gathering facilities, large crops of expert grain buyers to select grains where crops are best, large elevators, modern milling machinery and unequaled distributing equipment, the Armour Grain Company holds an advantageous position among cereal manufacturers. These combined resources have made it possible to guarantee uniform excellence and value for the product.

An interesting phase of their selling campaign is the fact that they are endeavoring to obtain from every housewife proficient in cookery new and perhaps unusual ways of serving oats. Any one who has original ideas upon this subject will do well to get in touch with the Armour Grain Company.

MAZOLA.—Manufactured by Corn Products Refining Company, New York, N. Y., manufacturers of Kingsford and Argo Starches and Karo Syrup. Prices: In glass (5½ ozs.), 15c; in tin (1 pt.), 30c; (1 pt.), 55c; (½ gal.), $1.05; (1 gal.), $2.

AS the name indicates, Mazola is the oil from *Zea Mays*, our maize or Indian corn. While this is not, strictly speaking, a new product, it has not until recently been actively brought to the attention of the consumer. At present the manufacturers are, by means of their advertising, advising the use of Mazola in an effort to reduce the high cost of living.

Mazola is a typical vegetable oil possessing all of the many virtues of that form of food. It is almost completely digested, the co-efficient of absorption being about the same as that for olive, peanut and cotton seed oils* Its Calorific value is high, as is always the case with pure fat—9 Calories to the gram or 4,082 to the pound. As to the food value of such products as Mazola, the following quotation from H. C. Sherman's "*Food Products*" is of interest:

> "In view of the high food value of the germ (*of corn*) and the fact that it constitutes one-tenth of the entire grain, it seems unfortunate that it enters so little into human consumption."

A point of practical interest to the user is its peculiar propensity of not absorbing odors or flavors, such as those of onions or fish. For this reason Mazola may be used repeatedly for such purposes as deep frying, the part not absorbed by the article fried being saved and used next time. Mazola blends well with the various elements used in the preparation of salad dressings.

As the normal content of oil in corn ranges from 5 to 7.5%, it is obvious that in the production of starch from corn on a large scale there must be obtained as a by-product considerable quantities of this very valuable food. The oil is found in and constitutes about 30% of the *germ*, which is separated from the balance of the corn kernel intact by means of clever manipulation and mechanical handling. The abstracted germ is dried and then submitted to hydraulic pressure, the oil being driven out in its natural condition. Fresh corn oil is, according to Leach, "Golden yellow in color and possesses a pleasant taste and odor." Mazola is further purified by steam and by treatment with fuller's earth, an inert substance which mechanically clears the oil of all impurities and undesirable qualities.

Increase of Food Prices in 1916.

Ending with January 15, 1917, the advance in retail food prices during the year was 19 per cent, as shown in statistics prepared by the Bureau of Labor statistics, an increase greater than for the three previous years combined, and a gain of 30 per cent for the four years. Every food staple except coffee and tea advanced during the year. Onions and potatoes led with increases of more than 50 per cent. Some of the advances were:

Sirloin, 7 per cent; round steak, 8 per cent; rib roasts, 3

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*From Henry and Morrison's *Feeds and Feeding* (1915).

*Moore, "Experiments with Edible Oils." Arkansas Agricultural Experiment Station Bulletin 78 (1903).

per cent; chuck roast, 7 per cent; pork chops, 10 per cent; bacon, 8 per cent; ham, 4 per cent; lard, 22 per cent; hens, 16 per cent; salmon, 7 per cent; eggs, 32 per cent; butter, 18 per cent; cheese, 27 per cent; milk, 11 per cent; bread, 13 per cent; flour, 38 per cent; corn meal, 23 per cent; potatoes, 57 per cent; onions, 50 per cent; beans, 39 per cent; prunes, 5 per cent; raisins, 16 per cent; sugar, 16 per cent.

Book Reviews

THE MICROSCOPY OF VEGETABLE FOODS.—By Andrew L. Winton, Ph. D., formerly Chief of the U. S. Food and Drug Laboratory at Chicago; formerly in charge of the Analytical Laboratory of the Connecticut Agricultural Experiment Station, etc. John Wiley & Sons, Inc., New York, N. Y. 701 pp. 635 ill. $6.50.

In 1882 the Association of German Millers offered a prize of a thousand marks for an essay describing a simple process for detecting admixtures in wheat and rye flour. Wittmack won this prize, and the motto of his essay was, "Das Mikroskop ist der beste Leitstern." Since that time the microscope has been the best loadstar for many workers in organic chemistry. One exceedingly able microscopist, Dr. Wright of the Carnegie Institution of Washington, not long ago identified 15 unlabeled alkaloids in less than an hour, his method being based upon the use of immersion oils of various refractive indices. The microscope is a great deal like a violin. It takes some time to become proficient in its use, but once mastered it can be made to do wonderful things. In *The Microscopy of Vegetable Foods*, Dr. A. L. Winton with the collaboration of Dr. Josef Moeller, head of the Pharmacognostical Institute of the University of Vienna, and Kate Barber Winton, Ph. D., formerly Micro-Analyst of the United States Bureau of Chemistry, has compiled a volume which will enable any one who can intelligently handle a microscope to identify practically any and all vegetable foods. Just as *Food Inspection and Analysis* by Albert E. Leach and Andrew L. Winton occupies a commanding position in the literature of the chemistry of foods analysis, so does this present work occupy the same relative position in the literature of food microscopy.

THE TECHNOLOGY OF BREAD-MAKING (American Edition).—By William Jago, F. I. C., F. C. S., and William C. Jago, Food Manufacturing Chemist, both of London, England. Bakers' Helper Company, Chicago, Ill. 908 pp. Profusely illustrated. $6.50.

This book is the friend, philosopher and guide of every bakeshop chemist. It is as integral a part of the flour mill and bakeshop laboratory as is a fine balance. The 1911 edition is a development of Mr. William Jago's former works on the same subject which appeared in 1886 and in 1895. Mr. Jago's son, William C. Jago, added to the book much of value due to his knowledge of the practical application of chemical methods in the flour mill and the bakeshop, together with his experience in the dairy industries of Denmark and in the laboratories of Professor Jörgensen of Copenhagen. Although a British book, and for that reason containing one or two chapters which are of no practical interest to the American reader, it is in the main the best book on commercial baking in the English language. Practically everything of interest to the scientific baker is herein discussed and explained in language well within the range of the lay reader. There are some 33 chapters ranging from a brief resumé of organic chemistry to bakehouse design and descriptions of modern bread-making machinery. The book is sound scientifically and the methods recommended are both practical and practicable.

CHEMICAL ENGINEERING CATALOGUE.—Compiled and published by The Chemical Catalogue Company, Inc., 1 Madison Ave., New York, N. Y. 288 pp. Profusely illustrated.

It is not often that one reviews a catalogue. This, however, is a very unusual catalogue, being a pretentious book of references for chemical engineers and all others who desire information on chemical equipment and supplies. It practically takes the place of a shelf full of miscellaneous catalogues coming from about all of the high grade houses in the country. The work is indexed and cross indexed in such a way that one may quickly be directed to any specific information it contains. The catalogue is published annually under the supervision of a committee appointed by The American Institute of Chemical Engineers, The American Chemical Society, and The Society of Chemical Industry. It is not for sale but instead is loaned without charge for one year to any chemical engineer, research chemist, industrial plant superintendent, works manager, buyer, firm or individual who has legitimate use for such a reference work. In form it is a folio page of plate paper, the typographical work and illustrations being of excellent quality.

In the Doctor's Office

Why You Feel Drowsy After a Meal.

By Dr. Leonard Keene Hirshberg, A. B., M. A., M. D.
(Johns Hopkins University.)

Sweet are the slumbers of a virtuous man, and deep is the sleep of the glutton. Do you feel sleepy after you have eaten your fill? It is almost natural to feel that way, according to Professor R. Goiffon of Paris.

There is almost an irresistible, certainty an imperious desire for some individuals to sleep after eating. "Narcolepsy" is the term applied to this condition by Dr. Gelineau.

Various investigators have tried to explain the sudden impelling drowsiness, which recurs whenever the stomach is full. One, Dr. Thermite, calls it by that ever handy name of doctors, "a neurosis," whatever that may mean. Whenever medical savants find no certain origin of a symptom, this scapegoat or omnibus disease is used.

Dr. Goiffon accounts for the sleepy feelings after eating as traceable to some disorder of the stomach, particularly of the muscle walls of that structure.

To confirm this description of the condition, Dr. Goiffon tells of a number of persons, especially subject to this acute somnolency even after a light, small meal is eaten.

The desire to sleep comes on very abruptly. Sometimes it is distinctly pathological and constitutes a source of danger to the victim himself. There is patient, Gong Lee, a Chinaman. Gong Lee had just finished a bowl of chow main and began to iron the laundry. The drowsiness overcame him so suddenly, it could not be resisted. He dropped the hot siron on his foot and the burn was so severe the foot was amputated.

Another example was typical. George Chaffe, a hod carrier, could not ward off the acute somnolence as he lugged his mortar and bricks up a ladder. Sleep overcame him before he had gone far, with the result that he fell to earth like an epileptic with serious injury to himself and another laborer.

Notwithstanding the close similarity between this emperious impulse to fall asleep after a meal and an epileptiform "absence" of the fit or convulsion of epilepsy, it is not related to "the falling sickness."

The snooze may last only a few minutes and the sufferer awakes wholly refreshed and invigorated. On the other hand, there may be no real sound sleep, because the occupation and duties of the person demand immediate attention after eating.

However that may be, research workers seem now fairly well agreed that some sort of gastric disturbance; a kind of motor deficiency of the stomach has a Sarah Bernhardt role in this ailment.

Drowsiness of this type is not limited to fat men and women. Jack Spratts and Peter Schlemickls, scarcely more than skin and bones themselves, are often found guilty after dinner.

Narcolepsy is curable. A stomach analysis with treatment to make up the muscular defects often suffices. A proper diet and a system of compensatory gymnastics and outdoor exercises works wonders.

Recent Patents

The following patents of interest to readers of this journal recently were issued from the United States Patent Office. Copies thereof may be obtained from R. E. Burnham, patent and trade-mark attorney, 882 Bond Building, Washington, D. C., at the rate of 20c each. State number of patent and name of inventor when ordering:

1,217,134. Process of curing meats. Harry D. Baumgardner, Frederick, Md.

1,217,314. Device for cutting spaghetti. Donato Piciulo, New York, N. Y.

1,217,345. Automatic stacking-machine for cakes, crackers, and other articles. Peter Rasmussen, Denver, Colo.

1,217,439. Macaroni-drying apparatus. Alexander Gallerani, Brooklyn, N. Y.

1,217,778. Dough-divider. William G. Kirchhoff, St. Louis, Mo., assignor to American Bakers Machinery Co., same place

1,217,891. Method of folding noodles. Samuel Mueller, Jersey City, N. J.

1,218,190. Carbonated beverage and method of making same. Charles G. Kummerlander, Washington, D. C.

1,218,340. Candy-twisting machine. Domenico Della Rorre, Providence, R. I., assignor to The Anderson Candy Co.

1,218,758. Lard substitute. Earl B. Graham and Ralph E. Kirkham, Bellingham, Wash.

1,218,759. Process of manufacturing pastry-shortening. Earl B. Graham and Ralph E. Kirkham, Bellingham, Wash.

1,218,858. Candy-wrapping machine. Jesse W. Greer, Fort Worth, Tex., assignor to Massachusetts Machinery Co.

1,218,914. Process for curing figs for use in making a beverage. Mesrob Varjebedian, Fresco, Cal.

1,219,005. Food product and process of preparing the same. John H. Kellogg, Battle Creek, Mich.

1,219,130. Process for treating fresh meats with a view to conserve the same in a fresh condition in open air. Julien J. Monvoisin, Montreuil, France.

1,219,237. Fish-packer and carton. Christopher M. Bridges, San Francisco, Cal., assignor to Bridges Sanitary Fish Container Co., same place.

1,219,286. Food product and method of manufacturing and preparing the same. William B. Gere, deceased, late of Syracuse, N. Y., by Annabel B. Gere and Alfred H. Durston, executors, assignors to Merrell-Soule Co., Syracuse, N. Y.

1,219,737. Dough-chute for dough-divider hoppers. Cyrus H. Heilig, York, Pa.

1,219,809. Cereal food. Robert S. Cates, Kingman, Kan.

Retailers' Profits in Food Trades.

An interesting—almost official—decision on the adequacy and fairness of retailers' profits in the food trades is found in a recent paper by Prof. Melvin T. Copeland of Harvard, delivered lately before the New York State Wholesale Grocers' Association. Professor Copeland is not only an expert in costs but was one of the Massachusetts commissioners who recently investigated the high cost of living in that state under gubernatorial appointment. Professor Copeland says:

"I have referred to the losses which many retail grocers have suffered during the last year. I know of no case where a retail grocer has made exceptional profits. Abuse has unfairly been heaped upon the retail grocer for the high cost of living. Anyone who is familiar with the facts knows that the retail grocer and the wholesale grocer cannot be blamed for present high prices. These high prices are due largely to circumstances over which we have no control. They have not been enhanced unfairly by wholesalers and retailers. On the contrary, they have brought losses to some and they are likely to bring much greater losses in the future.

"When the present high prices begin to drop, undoubtedly many retail grocers and perhaps some wholesalers will be caught with large stocks of merchandise which can be disposed of only at a loss. Those losses will offset some of the profits of the last year. Under present conditions I assure you that I do not covet the wholesale grocer's job during the next few months."

Linihan Goes With Alart & McGuire.

Many readers of this journal will no doubt take interest in the information recently received of the change in position made by John E. Linihan, who for many years was vice-president and manager of the United Cereal Mills Company of Chicago and Quincy, Ill., and an ex-president of the American Specialty Manufacturers' Association. In 1903 he was general manager of the Battle Creek Breakfast Food Company, and when that concern moved to Chicago and Quincy and changed to the Egg-O-See Company Mr. Linihan remained with it as president. When it again changed its name and became known as the United Cereal Mills Company he continued with it as vice-president and sales manager until last November.

JOHN E. LINIHAN.

Mr. Linihan has taken the position of general sales counsellor and advertising manager of the Alart & McGuire Company of New York City, the largest packer of pickles for the grocery trade and the owner of the Waw Waw Packing Company. He has allied himself with this company with the intention of expanding the lines of goods it manufactures, increasing specialty work and advertising.

Canada's Wheat Crop.

An official revision of the wheat crop of Canada under date of January 20, 1917, as reported in the Monthly Crop Report of Washington, D. C., showed there were 426,746,000 bushels for 1915 and 220,367,000 for 1916; the acreages being, respectively, 14,675,300 and 12,879,500. This revision is based, in part at least, upon the recent census for Manitoba, Saskatchewan, and Alberta. The preliminary estimate for the 1916 crop was 159,123,000 bushels, and the crop of 1915, before the recent revision, had been placed at 376,303,000 bushels. The revision constitutes a gain of about 61,000,000 bushels in 1916 and 50,000,000 bushels in 1915.

Wheat Standards Promulgated.

The official grain standards of the United States for wheat were fixed, established, promulgated, and published March 31, by the Secretary of Agriculture, under the authority given in the Grain Standards Act. The standards are to become effective as follows: Standards for hard red winter wheat, soft red winter wheat, common white wheat, and white club wheat, are to become effective on July 1, 1917. The standards for all other wheats, including spring wheats, are to become effective on the first day of August, 1917.

The use of these standards after they become effective is required for wheat shipped from any point in the United States in interstate or foreign commerce and sold, offered for sale, or consigned for sale by grade. The act, however, permits the interstate or foreign shipment of grain sold by sample or by type, or under any description which is not false or misleading and does not include any of the terms of the official grain standards.

The standards for wheat promulgated divide wheat into the following classes and subclasses:

Class I.—Hard Red Spring.—This class shall include all varieties of hard red spring wheat, but shall not include more than ten per centum of other wheat or wheats. This class is divided into four subclasses as follows: Dark Northern Spring, Northern Spring, Red Spring, Red Spring Humpback.

Class II.—Common and Red Durum.—This class shall include all varieties of durum wheat, but shall not include more than ten per centum of other wheat or wheats. This class is divided into three subclasses as follows: Amber Durum, Durum, Red Durum.

Class III.—Hard Red Winter.—This class shall include all varieties of hard red winter wheat, but shall not include more than ten per centum of other wheat or wheats. This class is divided into three subclasses as follows: Dark Hard Winter, Hard Winter, Yellow Hard Winter.

Class IV.—Soft Red Winter.—This class shall include all varieties of soft red winter wheat, also red club and red hybrid wheats of the Pacific Northwest, but shall not include more than ten per centum of other wheat or wheats. This class is divided into three subclasses as follows: Red Winter, Red Walla, Soft Red.

Class V.—Common White.—This class shall include all varieties, except Sonora, of common white wheat, whether winter or spring grown, but shall not include more than ten per centum of other wheat or wheats. This class is divided into two subclasses as follows: Hard White, Soft White.

Class VI.—White Club.—This class shall include all varieties and hybrids of white club wheat, and the common white wheat known as Sonora, but shall not include more than ten per centum of other wheat or wheats.

Each subclass of wheat is divided into six grades, described as No. 1, No. 2, No. 3, No. 4, No. 5, and Sample Grade.

All standards are fixed on a dockage basis. This contemplates that, in the grading of the wheat, all weed seeds, sand, and the like, will be removed by proper sieves and that the residue of wheat will be graded according to its quality and condition.

In addition, the regulations provide for methods of grading mixed wheat, smutty wheat, and treated wheat.

The order establishing the wheat standards defines bases of determination of percentages, dockage, mixed wheat, smutty wheat, treated wheat, test weight per bushel, percentage of moisture, heat-damaged kernels, and inseparable foreign material.

Section 4 of the order provides that any grain which, when free from dockage, contains more than six per centum of grain of a kind or kinds other than wheat shall not be classified as wheat.

The standards are published as Service and Regulatory Announcements No. 22, Office of Markets and Rural Organization, U. S. Department of Agriculture, which will be sent, on application, to those interested.

Cocoa Trade of the United States.

The position of the United States as the world's leading buyer of crude cocoa lends particular interest to its official foreign-trade figures relating to this product. Large as have been these purchases in the past, the fiscal year 1916 established a new record for both quantity and value with respective gains of 26 per cent and 53 per cent over the figures for 1915—which latter was itself a record year. Further, there was a shifting of the ports of embarkation, the Dutch West Indies, Chile, British Guiana, Peru, British West Africa, and French Africa appearing for the first time among the important direct shippers of cacao to the United States, and Brazil, with a gain of $4,000,000 to its credit, reaching a new prominence in the trade. In a discussion of the status of the United States in the international cacao trade published in *Commerce Reports* for December 24, 1915, the opinion of certain importers that New York would one day become the cacao center of the world was quoted. Some progress toward this goal was made during 1916, with re-exports amounting to 31,484,491 pounds, against 28,979,054 pounds in 1915. Both of these totals exceed by many million pounds the re-exports for earlier years. The consumption of crude cocoa in the United States during 1916 approached 250,000,000 pounds. How much of this vast quantity reached the consumer as "prepared cocoa or chocolate" and how much as "confectionery" can only be guessed at in the absence of accurate data on the subject, but in a recent issue of the International Confectioner it is stated: "Generally it is thought that about one-half of all cocoa products are used in the form of some confection. To work up this great stock of raw material into products other than confectionery required forty factories and the labor of 4,700 wage earners; it called for the investment of $27,000,000 capital; the products made from it were worth $41,000,000—if one may assume that the industry expanded during the last two years at the same average rate as in the five-year period 1909-1914. Allowing for the foreign trade, this gives an average per capita expenditures for "cocoa and chocolate, prepared or manufactured (other than confectionery)" of 39 cents in 1916. From 1869 to 1914 there was an increase of 300 per cent in the number of establishments, 1,990 per cent in the number of wage earners employed, 6,182 per cent in the capital invested, and 3,674 per cent in the value of the output. Notwithstanding this seemingly adequate domestic production, between 2,000,000 and 3,000,000 pounds of foreign "cocoa and chocolate, prepared or manufactured (except confectionery)," are imported annually. The exports of American-made cocoa and chocolate in 1916 did not equal in value those for 1915, but still were much ahead of the shipments during 1911-1914.

Chinese Egg Products for America.

The Bureau of Foreign and Domestic Commerce reports that wealthy Japanese capitalists, among whom are some of the most prominent business men in Japan, have organized a company for the manufacture of egg products in Tsingtau, China. Two large factories which formerly turned out these products have been standing idle since the outbreak of the war. The new concern is known as the Tsingtau Egg Powder Factory. It is to have a capacity of 803,000 pounds of dried yolk and 341,000 pounds of albumen per annum. It is planned that the buildings shall be under construction by March, 1917, and the machinery completely installed by the following May. The originators of the enterprise hope to sell mainly to the American market, although they will attempt to develop the Japanese and European markets as well.

Food Supply Greatest War Weapon.

In an address at the eleventh annual convention of the Tri-State Wholesale Grocers' Association in Philadelphia recently Edwin F. Sweet, assistant secretary of the Department of Commerce, spoke upon the importance of the food supply in times of war. He said that if there was no food question the war in Europe might last for many years, and added that if war came to this country the wholesalers and distributors of foodstuffs would play an important part.

Staff Correspondence

Washington, D. C.

There is every indication that the administration will not be long in taking charge of the food situation in this country.

More drastic food laws and far more drastic federal control of the production and distribution of foodstuffs are certain to ensue as a result of the present war situation. With the United States only on the verge of war, the domestic food situation has already become serious.

At the present time the United States is practically the only country in the world which is not exercising a stringent supervision and control over its food supply and administration leaders admit it will not be long before it joins the ranks of all the rest. There have been many indications during the last few weeks as to the way the wind is blowing.

Secretary of Agriculture Houston has issued several public statements on the food situation; the trade commission has been carrying on a limited investigation; the departments of agriculture and of justice have investigated the amount of food in storage; and the department of agriculture has been carrying on a very careful inquiry into the possibilities of increased food production during the next few months. The whole government has lent its assistance to the backyard farming movement and every resource of the government is being brought to play in the effort to get the large producers to increase their production. Prices will go sky-high during the next few months, it is predicted, and notwithstanding the increase there will be a distinct falling off in many lines.

One of the natural results of this unnatural condition will be that congress will be called upon to enact many regulating laws and many standards laws, as war measures, which probably will remain on the statutes after the war is over unless strong pressure is brought to bear to remove them. A Food Commission is not unlikely. A law authorizing this Commission, or the Secretary of Agriculture, to prescribe grades or standards of food is not improbable. If the war continues more than a year, a law prescribing rations or a balanced ration might even be enacted.

Few people in the United States realize the extent to which the warring nations of Europe have gone to control their food supply. Germany of course has worked out the problem to an exact nicety, figuring so many calories necessary to the maintenance of individuals in various lines of industry in good health, allowing them that many and no more. Even Great Britain has prescribed rations and these apply not only to British subjects but to all foreigners, including the diplomatic corps in London. The tennis court of the American embassy is to be plowed up and planted to vegetables under the British food controllers' direction this year. Every available inch of ground in Great Britain is to be cultivated.

An outline of the situation in Great Britain has just been prepared for our own department of commerce by one of its representatives. There is a food controller, Lord Devonport, who has practically unlimited powers under the Defense of the Realm act. He can and has fixed rations. In many instances he has made them voluntary rations. But at the present time he prescribes the amount of bread, flour, sugar, meat and other necessaries which can be used by individuals during a week. He has fixed courses in hotels and restaurants. He has the power to commandeer food, fix the price of food, fix standards of foods, and he has done all of these things.

The British government also, through the Board of Agriculture, can take vacant land and plant it in crops. It may prescribe the kind of a crop to be grown on land and it can fix the price of crops so grown, as well as the price of labor paid to agricultural workers. In fact, it has already taken the land, has fixed the price of grain for 18 months ahead, and has established a minimum wage for farm laborers. The British long ago established a strict national control of food imports and have given as much attention to the food situation as to the munitions necessities. The drastic food control in Great Britain is as nothing to the control in France and Germany. It has been a matter of development, but it is continuing to develop from day to day.

The first step towards British government control came in the fall of 1914 when the Royal Commission on Sugar was established. Great Britain before the war bought millions of tons of beet sugar from Germany and Austria each year. The sugar commission was appointed ostensibly to prevent trading with the enemy. Shortly after its appointment, however, it became apparent that the commission would have to deal with the amount of sugar needed by Great Britain for actual consumption as well as the amount obtained illegitimately from enemy sources. At the present time the Sugar Commission buys the raw product turns it over to the refiners at a fixed price and then fixes the price at which the refiners shall sell sugar to the general public.

Last year the Flour and Wheat commission was formed. It has purchased most of its supplies in the United States. This commission purchases and distributes all flour and wheat consumed in Great Britain. Under British admiralty orders a certain portion of the cargo of every British steamer sailing from American ports must consist of wheat or flour, as well as munitions. The food controller was appointed about the same time as the wheat commission. He started out by taking stocks of supplies on hand and fixing prices, grades, rations, etc., etc. The price of meats and the amount of meat consumed have been regulated through the co-operation of a committee from Smithfield market.

Reports received by the Department of Commerce here indicate a tremendous grain shortage through the entire world. Only this week, Argentina declared an embargo on the exportation of grain. The Russian wheat crop is short; the Rumanian crop has been entirely destroyed. France, among all the nations, is the only one reporting increased grain production prospects and France will need much outside assistance in order to meet its own demand for food.

One of the steps taken by both France and Great Britain to increase their bread supply is to decree the mixing of corn and wheat flours for bread making purposes. Such a step will be among the first taken by this country, it is predicted. The Rainey bill, repealing the existing tax on mixed flour, will come up for consideration early in this session. The Department of Agriculture only a few days ago issued a statement advising the mixing of corn and wheat flours, to a proportion not greater than 25 per cent of corn flour to 75 per cent of wheat. The original Rainey proposal was only for 20 per cent corn flour and 80 per cent wheat. The wheat growers and the wheat millers unquestionably will keep up their fight against the Rainey bill in this session, but with food prices soaring daily it is predicted that the measure will be enacted into law before many months elapse.

Another measure which may be considered is the Underwood proposal for a straightaway tax of 2 cents a pound on all oleomargarine, colored or uncolored. This was beaten in the Senate in the closing days of the last session as a result of the opposition of the dairy and creamery interests. But students of the food situation predict that the present tax of 10 cents a pound on colored oleo will be reduced or steps will be taken to place a similar tax on colored butter. The packers, it is believed, can increase their oleo production enormously if a sufficient market is opened up for their product.

Unquestionably all kinds of suggestions for the solving of the food problem will be advanced during the next few weeks. And there will be a flood of bills introduced in congress. But a permanent food policy is being considered by the administration now and will unquestionably be presented for congressional action, if the war continues much longer.

Alabama.

Two additional food inspectors will be employed at Birmingham, the appointments to become effective on May 1, when the summer health campaign will be waged by both the county and city. Other inspectors will be added as the campaign progresses.

A committee has been named by the Ensley commercial club to investigate reports that a herd of 100 cows, owned by Jac's dairy, are infected with tuberculosis. The commercial club wants to condemn the entire herd in order that the users of milk in Ensley might be protected.

The Montgomery city commissioners have adopted an ordinance which prohibits the selling of fish from barrels and other receptacles on the streets or sidewalks. The ordinance was suggested by the health department, the inspectors having recently discovered bad fish had been disposed of. The ordinance fixes a fine of from $1 to $100, or also imprisonment in the city prison for six months.

An ordinance providing for screens to be placed over all food products disposed of at Gadsden by the fruit dealers, markets and grocers has been adopted by the city council. The ordinance provides for a fine or imprisonment or both.

Food unfit for human consumption is being sold in Alabama daily because there is no appropriation for the examinations, according to the annual report of J. M. Moore, food and drug clerk of the Alabama Department of Agriculture. Mr. Moore frankly admitted that these facts present a serious situation to the food and health department. In this report it is pointed out that not one penny is being appropriated to carry on the work of inspecting foods for human consumption. Mr. Moore states that because of the inability of the chemist to get around over the state dealers and manufacturers take advantage of the department and place bad food on the market. It appears there is no relief from this condition. The state has stopped the payment of salaries to many state officials who get more than $300 monthly, and there is no money in the treasury to aid in the work of the department.

One of the most interesting cases to come in the Federal court at Birmingham was that of George Boring and Margaret Boring, who were charged with violating the oleomargarine act. It was charged that they sold to customers this substitute for butter, stating it was pure butter. Judge W. I. Grubb of the court sentenced them to serve 30 days in jail and to pay fines of $500 each.

Commissioners at Birmingham have adopted an ordinance which requires restaurants and other places where food is served to have a card posted in a conspicuous place, bearing the rating of the place. All places scoring more than 90 will be given a white certificate, embossed with a gold seal. This card will indicate the place is worthy of the city's support and the patronage of the public. Establishments scoring as high as 90 will have a plain white card; those above 80 a blue card, and those below 80 an orange card. The ordinance requires that all cards be posted in a place where they can be seen.

Mrs. Mary W. Willis, chief food inspector of Birmingham, has sent out letters to all restaurants, lunch counters, soft drink stands, grocery stores and other establishments serving food and drink to the public. The letter calls attention to the laws of the city and the need of sanitation.

"We are not going to stop with the cards," said Mrs. Willis. "We are going to try to have everyone come up to the standard requiring at least a white card. We are going to give them all a chance to improve, but unless there is a disposition shown to co-operate, a lot of places having orange cards will be closed up by the city and kept closed until the laws of health and sanitation are complied with."

California.

The rice growing industry in California is rapidly becoming an important factor in the commercial progress of the state. It is confined to the great Sacramento Valley where the climate, soil and water, the three great essentials, are most favorable. The Rice Journal of Crowley, La., is authority for the statement that in 1916 the acreage planted was 72,000, as against 28,000 in 1915, and that preparations are under way and several great projects are in contemplation which will insure an increase in the acreage which will bring it up to 100,000 for 1917.

The Sacramento Valley, which extends through the northern half of the state, is a portion heretofore practically unproductive, and its conversion to the cultivation of this increasingly necessary and valuable commodity will give to the state an added impetus in commercial growth which will in a few years be exceedingly appreciable.

Idaho.

The fourteenth Idaho legislature has adjourned without carrying out the proposed plan of consolidating the food department with the board of health, medical and other boards. The bill was passed by the house of representatives but died in the senate.

Governor Alexander has just appointed Dr. B. O. Clark of Payette a member of the board of health to succeed Dr. O. B. Steely of Pocatello. The board will meet soon and settle definitely the question of whether or not John Kirby White is to be retained as food commissioner. Mr. White has held the office for two years and prior to that was chief deputy under James H. Wallis. He is regarded as one of the most competent heads it has ever had and there will be keen disappointment among many who have the best interests of the department at heart if he is not retained in office. It is understood that M. S. Parker, former deputy in the department and former health officer of Boise, is an applicant for the position.

Commissioner White has issued the following special instructions to his field deputies:

"You will give special attention to basements and backrooms in grocery stores, drug stores, bakeries, ice cream and confectionery parlors and all other places where foods or food products may be stored or manufactured. These places must not only be meat and clean but also well ventilated and lighted and stock so arranged that flour, sugar, etc., may not come in contact with oils, vinegar or refuse matter of any kind. Extra special attention must be given to basements in which ice cream or other food products are made and those that are unfit or not suited for such purposes from the point of sanitation and proper ventilation and light must be closed for such use."

Indiana.

The biennial session of the legislature is ended and the State House is free from politics and politicians. This statement is made advisedly and is fully warranted by the attitude Governor Goodrich is taking in reference to the public service. In discussing this subject before a convention of city and state pure food inspectors and inspectors of weights and measures, and in speaking of the Pure Food Department he said: "I think you ought to feel very happy indeed that you are serving under a department that has always been free from political influence. It doesn't make any difference whether the governor is a Republican or a Democrat, your department goes on just the same. That is the way it ought to be. Efficiency only ought to count and it is a good thing that a man serving in your important capacity should be selected on merit, and that his qualifications should dictate his appointment and not political pull. I have become a civil service reformer within the last few weeks. I find myself by the force of circumstances compelled to displace competent men fit to serve the state, because perchance they are not of my political party. And it isn't a good thing. I don't intend that competent Democrats shall be displaced simply because they are Democrats. And yet this state has been to a greater or less extent cursed by the practice of changing the employes of the various departments every few years, and it is true of most of the other states. We don't do it in our business; we ought not to do it in our government.

"A man no sooner gets acquainted with his work and familiar with his duties than he is displaced by someone who is less competent because he hasn't had the experience. I

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only wish that our laws could be revised, and that all inspectors could retain their positions as long as they render efficient service and that they could be placed absolutely under the power of Dr. Barnard, who has demonstrated his ability in the administration of the food and drug department. When we do that we will have efficiency instead of politics in our offices, and the people's business will be honestly and efficiently done."

The weights and measures bill, which fixes the weights of bushels of fruits, vegetables, grain, seeds and other commodities has become a law. It changes the weights of several commodities, notably onions from 48 to 57 pounds per bushel and sweet potatoes from 55 to 50 pounds per bushel. It fixes the weight of a bushel of apples and peaches at 48 pounds per bushel. It further provides that when commodities are sold by measure, a practice which unfortunately is still allowed in the case of farmers who peddle their own produce from house to house, the bushel and fractional measures must contain the number of pounds fixed by the new statute. In effect this protects the consumer quite as thoroughly as if no measures were allowed.

In a recent case brought against a butcher whose sausage was found to be adulterated with cereal and water, some startling evidence was disclosed. According to his statement sausage consisted chiefly of cereal and water to which was added the cheapest cuts of meat. The formula which he said could be successfully used in the manufacture of one hundred pounds of sausage reads as follows:

30 lbs. beek flanks @ 8c	$2.40
10 lbs. pork butts @ 20c	2.00
20 lbs. flour @ 5c	1.00
Spices, salt, pepper and sage	.60
40 lbs. water	.00
	$6.00

If this formula is commonly used by butchers it is easy to see how sausage can be sold for 14c a pound, as is the case in some markets even when hogs are selling at $15.40 a hundred live weight.

The water laboratories of the State Board of Health have been busy. In addition to the routine work in which 47 samples of water have been analyzed during the month, sanitary investigations have been made in the cities of New Haven and Montpelier and assistance rendered to the city of Fort Wayne, which had difficulty on account of contamination at pumping station number two, one of the principal sources of supply for the city. The equipment of the laboratory has been increased by the courtesy of the Wallace Tiernan Company of New York, which has loaned the State Board of Health its apparatus for the chemical treatment of water supplies by means of chlorine gas. This outfit, which is a complete unit, is enclosed in a compact case which may be easily transported to any point in the state in case of the failure of any purification devices of their water plant or whenever any condition occurs which may result in a contamination of the public supply. For several years the department has maintained emergency hypochlorite outfits which were available at the call of any health officer or water works official who found the public water supply likely to become contaminated. The use of chlorine gas is rapidly displacing hypo for sterilization of water supplies, and the department considers itself very fortunate to be able to have at its disposal a portable plant for applying this chemical. This outfit is at the disposal of any health officer or water works official who feels that he has a need for it.

During the month 305 food samples were analyzed, 92 of which were reported as illegal. The large number of adulterated samples is due to the fact that the inspectors are finding meat products such as hamburger and both pan and link sausage grossly adulterated. For a number of years the use of sulphites in hamburger and cereal in sausage has been restricted to an occasional butcher, but at the present time we are finding more adulterated meat foods than at any time since the enactment of the pure food law. Out of 41

Staff Correspondence

samples of hamburger, eight contained sulphites. Of 148 samples of sausage 54 were adulterated either with starch or sulphites. Three samples of wienerwurst were loaded with starch. Of fifty-one milk samples analyzed, 18 were listed as illegal in every case because of skimming and watering and in some instances there was present visible dirt.

The inspectors visited 844 places where food stuffs were handled. They report five establishments in excellent condition, 427 good, 276 fair, 127 poor and nine bad. Six of the nine bad places reported were dairies, 31 of which were visited. None were found in excellent condition, five were reported good, 14 were fair, six poor and six bad. Of the 334 grocery stores visited, two were rated excellent, 168 good, 117 fair, 46 poor and one bad. Of the 225 meat markets inspected two were in excellent condition, 108 were good, 56 fair, 58 poor and one bad. Twenty-five drug stores were inspected and all found to be in good condition. The druggists apparently appreciate better than other business men the importance of operating a sanitary shop in strict compliance with the food and drug laws. Of the 109 bakeries and confectioneries visited 75 were in good condition, 31 were fair, two were poor and one was reported as bad. But one of the eighty hotels and restaurants visited was reported excellent: 23 were good, 45 fair and 11 poor. Other places visited included fish markets, ice cream parlors and factories, bottling works, slaughter houses, wholesale groceries, etc.

In commenting upon the unsanitary condition of dairies Commissioner Barnard says: "The dairy situation is not improving and we are convinced that it will not be improved until state and local officials compel the dairymen by sheer force of law to operate their places with some regard to the health of the consumer and the decencies of life. We have hoped that the dairy industry would finally be developed on a business basis: that the small renters who keep two or three cows and who have no equipment would stop selling milk and that the farmers with capital would see an opportunity to develop a profitable business. The State Board of Health is interested in better dairying. It would place no obstacle in the way of this development. It would have its rules reasonable and exact no investment which was unnecessary or expensive, but it would require the men who produce milk to produce it under just as sanitary conditions as is required of the man who produces bread in a bakery; who runs a restaurant or who operates a canning factory. The State Board of Health would not discourage the farmer—rather it would encourage him not only to build up a good business, but by pointing out to him the opportunity he has to serve the public by providing the most necessary of all foods under such conditions that it is absolutely safe."

Maryland.

In Baltimore, the Federal Court of Appeals has reversed the lower Federal court in the famous case of Frey vs. The Welch Grape Juice Co., thereby deciding that Welch violated the anti-trust laws when he refused to let Frey—a Baltimore jobber—have goods to sell at cut prices, because of agreements with other merchants to maintain a uniform resale price set by Welch. The action came on a writ of error as to the admissibility of certain evidence in the original case, but it nevertheless shows the court's antagonism to the price maintenance idea.

Massachusetts.

Certain Boston capitalists have completed arrangements to erect what will prove to be the largest cold storage warehouse in the world. There are at present seventy-five cold storage warehouses in Massachusetts which are under the jurisdiction of the State Department of Health. A close watch is kept on all transfers and outputs, special attention being paid to the quality of the products that are put on the market. This work is under the direct supervision of Commissioner Hermann C. Lythgoe, who recently stated that the laws relative to the cold storage of food are being rigidly enforced, so rigidly in fact that in 1916 there were only one-half as many prosecutions as in the preceding year.

The inspectors of the State Department of Health confis-

A surprise
—in biscuits

When my mother brought in the plate of hot biscuits, she said: "Thank goodness they turned out light! Your Cottolene certainly does make them light."

She meant the Cottolene that Mr. C. had given me to try.

My small sister teased Mother about butter, because mother had always sworn by butter for biscuit making.

But Mother had to admit that Cottolene was quicker and easier, beside being cheaper than butter—and yet that Cottolene biscuits tasted every bit as good as butter biscuits. She said she had never yet seen a shortening that mixed as evenly and smoothly as Cottolene.

The biscuits were rich and crisp with a delicious flavor. From E. C.

Cottolene
"The Natural Shortening"

At grocers in tins of convenient sizes

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cate a large amount of food in cold storage because of decomposition, the record being 52,660 pounds in 1914, 71,734 pounds in 1915 and 95,872 pounds in 1916. An experiment is now being made to determine the preservative effect on eggs in the shell and broken out eggs. The result will not be known until 1918. A case of eggs was obtained in the spring of 1916 and was divided into three portions. A third of the eggs were broken out, thoroughly mixed and placed in half-pint cans and frozen; another third were placed in storage in the shell in the usual manner; and the third portion were placed in water glass. These eggs are being examined chemically and bacteriologically from time to time, and the conditions carefully noted. After a lapse of two years the State Department of Health will be able to state definitely which method of preserving eggs produces the best results.

In commenting on the confiscation of food found in warehouses, Professor Lythgoe says: "The articles confiscated were largely fish and eggs, the former being used for bait, the latter for tanning purposes. These articles were all bad when placed in cold storage. It is unfortunate that our system of food distribution is such that so much food is wasted. If these articles had been placed in cold storage before decomposition had taken place they would have come out of cold storage fit for food."

The dairy farmers of Massachusetts have asked the general court for permission to organize a trust. They want to call themselves "The New England Milk Producers' Association" and seek the incorporation as "an organization of dairy farmers, instituted for the purpose of mutual help and not for profit." Their petition is now before the legislature. Incidentally and simultaneously comes a boost in the price of milk from 10c to 11c a quart. The big milk contractors have been paying from 4.45c to 4.55c per quart for milk delivered at country stations, the price varying with the distance by zones.

The dairy farmers want 5c a quart now and have decided to demand a reasonable advance for milk of better quality, this advance to take the shape of greater premiums for excess over the usual standards and the extension of the premium system throughout the selling territory.

A bill is before the legislature which, if it becomes a law, will give a special commission authority to seize all food products in the commonwealth and dispose of them to the people at any price the commission may determine to be fair and equitable. The commission will be known as the "Food Commission," and it will consist of the governor, the attorney general and three citizens to be appointed by the governor. If the governor deems it wise or necessary he may at any time increase the membership of the commission. The bill gives the commission almost omnipotent power, and gives it authority to use the state police, the police forces of cities and towns, all constables and the sheriffs and their deputies of the several counties in enforcing its commands.

The hearings before the committee considering the bill have been crowded and much interest is manifested as to what disposition the legislature will make of it. It is assumed, of course, that the commission will pay a fair price for what it seizes, but there is nothing in the bill to compel it to do so. The emergency part of the bill saves it from being unconstitutional, for only in case of an emergency can the commission exercise this extraordinary power of seizure, and when the emergency ceases that extraordinary power disappears. All that is contemplated by the bill can be done under existing law but only when the governor declares martial law. Who shall determine when an emergency exists is not mentioned in the bill, but the intention of the petitioner was to make the commission itself the judge. A representative of the state granges opposed the bill only to the extent that it gives a commission more power than the governor has to seize food and land. He said that the farmers were in favor of conservation of food and food products, but that they would protest if their land and products were to be exposed to seizure by a commission clothed

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Plum Pudding,
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Tomato Catsup

Bridgeton, N. J.
and 331 Spring St., New York

Staff Correspondence

with more power than rests with the governor of the commonwealth.

Michigan.

Labor Commissioner Cunningham of Lansing has drafted a bill to make the 16-ounce loaf and the 8-ounce loaf the bread standards of Michigan and provide a penalty for anyone who makes and sells a loaf under weight. The state dairy and food department approves the measure. Mr. Cunningham states that some city bakers make full weight loaves to comply with city ordinances, but make loaves to ship to their out-of-town trade that often weigh as low as seven and eleven ounces.

Minnesota.

The meat dealers of Minneapolis are unanimous in a move for protective sanitary measures which has its inception in a petition to the city council for an ordinance prohibiting dogs and other domestic animals in plants where sausages are manufactured and the sausage rooms of meat markets. Other requests in the petition were to prohibit the use of tobacco in sausage rooms, to compel wearing of washable clothes in making sausage, and to cover with glass all counter and window exhibits of meat.

New York.

Nothing of late occurence has been more interesting to the well-informed observer, along the line of the misguided operations of the food reformer than the collapse of the Wicks-Perkins-Dillon plan to make mercantile water run up economic hills. A month ago, it was as ascendant as a rocket and now it is as inglorious and absurd as the descending stick. All of which was, of course, perfectly well forecast by well-balanced merchandizing students, assuming that a legislature really possessed a reasonable mode of common sense.

Seldom have any of the pet hobbies of the reformers so thoroughly aroused business men as did this fiasco and long before the Wicks bill—intended to solve alike the high cost of living, the multiplicity of middlemen and the fetich of state control of feeding the public—was formally drafted into its 308 pages, business interests of every kind throughout the state had a fair idea of its perilous character. Protests poured in from every side and even the brave bluff of the fathers of the measure to jam it through, failed to save it. When the hearing was held the avalanche of protest was irresistible and the committee frankly admitted at the outset that the bill would be redrawn before any formal hearing would seriously ensue.

It is commonly believed, however, that the whole scheme is dead and business men, legitimate enterprise and the economic law can still operate a little longer before the state appoints any individual as food dictator, with sweeping power to control production, distribution and even the price of foodstuffs.

Inseparably associated with this freak of Socialistic paternalism, however, will remain always the story of "Paternal Perkins and the Jumping Beans"—more diverting than Mark Twain's famous jumping frog of Calavaras County yarn. Mr. Perkins, Paternal Perkins, head of the Mayor's food committee, was apparently convinced that the merchants of New York were gouging the consumers, and he wanted to remedy matters. So he bought 5,000 bags of Brazilian beans and 185,000 pounds of Columbia river smelts to sell at cost to the suffering public. Some say he bought several tons of rice but no one seems to know whether this is really true. The beans soon became very active—physically as well as commercially—and the wicked tradesmen let it be known that they were the same beans which had been kicked around the trade for weeks because no one dared take them into his warehouse, lest the houses be infested with weevils. Next, the health department swooped down on them and examined them. The first look was bad, so Mr. Perkins had them sent to a Brooklyn loft where they were "blown" in a machine, shaken and polished and brought back only 5 per cent animal matter. And the board of health let them pass on the basis of "eat-'em-quick," out of deference to the high cost of living.

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Our aim is not only to produce PURE foods, but to have those foods REMAIN pure. Armour's Star Ham, in the Stockinet Covering (an exclusive feature, patent applied for), is so fortified that no impurities can reach the skin. This juice-retaining knit covering insures a ham that is sweet in flavor and rich in natural juices.

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Other Armour Quality Products: Star Bacon, "Simon Pure" Leaf Lard, Grape Juice, Devonshire Farm Style Sausage, Glendale Oleomargarine (Natural Color), Silver Churn (White) and over 100 Veribest Package Foods.

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There's Only One Spread for Daily Bread
JELKE
GOOD LUCK
MARGARINE
is eaten with satisfaction at every meal. Always the same fine flavor—the same delicious taste, the relish and enjoyment there is to a pure, wholesome appetizing food.

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WARD'S TIP-TOP BREAD

is bread you can eat with a sense of safety because it is pure, clean and the standard of quality wherever sold.

It is pure, because only the highest grade bread making materials which money can buy are used in making it and the process under which it is made is the most advanced and scientific known to the baking industry.

WARD'S TIP-TOP BREAD is Clean because it is made in bakeries which are models of bread-making cleanliness. Every loaf is wrapped in waxed paper by MACHINE.

Hence, when you buy it you are guaranteed these three food manufacturing virtues—Quality, Purity and Cleanliness.

WARD BAKING COMPANY

THERE IS CLEANLINESS, HEALTH INSURANCE, ECONOMY AND CONVENIENCE IN

Our PET BRAND Evaporated Milk

The Standard of the World

Wins and Holds Trade on account of its Superior Quality

PREPARED BY

Helvetia Milk Condensing Co.

HIGHLAND, ILLINOIS

ORIGINATORS OF EVAPORATED MILK

Next, Perkins' fish commenced to live up to the name—that is, smelt. Even the Perkins' "experts" had to admit that and the health department condemned 82,500 pounds—almost half the lot—as unfit for food. So the two great staples of progressive food sale came to grief and Mr. Perkins concluded that not all the lambs shorn in trade are in Wall street.

But meanwhile Mr. Perkins discovered that middlemen really have value. He wanted their help to sell the jumping beans and smelty fish and begged the retailers to join him in the work of distribution. The grocers took a look at the beans and sidestepped. Then Mr. Perkins threatened to open city-owned groceries in opposition to the regular retailers and the retailers calmly told him to go ahead and do it—the quickest way to educate him as to the trials and tribulations of the merchants. He hasn't done it yet.

Meanwhile, the East Side food riots have been by many characterized as "inspired" and instead of being conducted by "starving" women, were really only an outburst of wrath at the high prices. One rioter arrested and searched, was found to have $16 in her silken purse. But even the riots have now subsided, under the increased supply of food coming in, due to the reduced railroad congestion, and about all that remains of the excitement is a systematic boycott among East Side Hebrews of the chicken speculators. Over 300 Kosher butcher shops have shut down, refusing to butcher the carloads of chickens as they arrive till prices fall, and thus far it looks as though they were accomplishing their end, for the birds are expensive stock to keep, with feeding and demurrage charges accumulating.

In fact, the high cost of food crisis seems to furnish the chief news motive of this month. Market Commissioner Dillon, so it is reported, claims to be able to reduce the cost of food to the consumer by increasing the price paid to the producer—a curious paradox that he insists will work out. All he has done yet, however, has been to pool 90 per cent of the milk production of New York state into a "Dairymen's League," for the purpose of compelling the city dealers to pay the farmers' prices. Legal minds believe it an illegal combine, but it is, nevertheless, operating and has held prices during the past six months so high that consumers are paying two cents more for milk than before.

Now comes the time for making summer contracts for milk and usually they have lowered prices. Not at all this year, however. The "League" worked beautifully—for the farmers—and summer prices will be about the same as this winter. After four days of negotiation, this is the best the dealers could get from the farmers, and they signed at that:

Three per cent milk (per 100 lbs.)

	1st District. City.	2d District.
April	$2.05	$1.95
May	2.00	1.90
June	1.90	1.80
July	2.10	2.00
August	2.55	2.45
September	2.55	2.45

These prices are for Grade B milk, barn score 55. Grade A will cost 15c more and Grade C 10c less, with 3½c additional for every 1% butterfat over 3%.

There is another bright hope of the market reformers gone wrong. When the reformers, who saw all kinds of hope in the municipal market scheme, were clamoring a couple of years ago for the city to build great city marts, several private property owners were prevailed upon to take flyers in the public market game. Benjamin Stern invested $60,000 in a magnificent "Cosmopolitan Garden"—marble, plate glass, refrigeration plant, band concerts, etc.—only to drop it in four months as a fizzle. He found the corner grocer, with all his faults, too much a public convenience to be overcome.

And now Vincent Astor's magnificent Astor market, representing a cost of $715,000, started about the same time right in the midst of a favorable residential district on Broadway at 95th street, has decided to quit. It has never been half rented, and the people stuck to the independent marketman with lower rents. The beautiful place—planned by Tracy & Swartout after the model markets of Florence, Italy—will

The Sun
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ROYAL BAKING POWDER

Known the world over as "the best baking powder."

Royal Baking Powder contains no alum. It is made from pure cream of tartar, which is derived from grapes. Hence, it assures wholesome and appetizing food, free from all adulterants that may go with would-be substitutes.

be bought by Adolph Lewissohn and developed for other purposes. And yet the politician and reformer still clamors for City Markets—which manifestly are not needed by public necessity and convenience.

Regarding the killing of horses for food, it has not yet reached a large scale. At present there is only one person licensed and actively engaged in it as a business. An attempt is being made to institute the "Freibank system" as practiced in Germany, which involves thorough sterilization of such parts of the carcasses of diseased food animals as are not infected, and the sale of them. This, it is thought, will add a very considerable amount of meat to the city's meat supply. It is in line with what is being done under certain restrictions by the Federal Bureau of Animal Industry.

Ohio.

Ohio is to have rigid inspection and supervision of its cold storage plants. This is provided for under the bill of Representative Smith of Cuyahoga county which, during the last hours of the session, passed both house and senate of the general assembly. The bill stipulates periods that food products may be kept in cold storage. The plants brought under the scope of the act are those in which food is stored for 30 days or more at 40° F. or lower.

The articles of food affected are fresh flesh of animals and fresh products therefrom, the fresh flesh of fowls, fresh food, fresh fish, eggs and butter. The maximum periods that various food products may be kept in cold storage are as follows: Whole carcases of beef, or parts thereof, six months; whole carcases of pork, or parts thereof, six months; whole carcases of sheep, or parts thereof, six months; whole carcases of lamb, or parts thereof, six months; dressed fowl, five months; eggs, ten months, and fresh fish, nine months.

To operate a cold storage plant a license must first be obtained from the state department of agriculture. Upon receipt of an application the department is required to make an examination of the plant to find out if it is sanitary and properly equipped. If it merits all requirements in these respects, the license is then issued. The fee for the license is $50. The agricultural department is given authority to close a storage plant if it is found to be insanitary.

Cold storage plants are required to make an accurate record of the receipt and withdrawal of food products from these plants, and these records shall be open to agents of the agricultural department at all times. Reports must be filed by the plants with the board on or before the sixth day of January, April, July and October, setting forth the kind and quantities of food products on hand.

All cold storage food products must be labeled with these words, "wholesome cold storage food." The date when the food was placed in storage must also be set forth. If the food is kept in storage longer than stipulated by the law, it cannot be legally sold. The penalties for violating the law are a fine of from $500 to $1,000 and imprisonment from 30 to 90 days, or both.

Also, an attack on high food prices was made by the general assembly when it made an appropriation for the state board of agriculture for the establishment of a bureau of markets. The purpose of this is to bring consumers and producers into closer relationship.

The Ohio Milk Producers' Association was formed at the Ohio State University, Columbus, by leading dairymen from throughout the state, the object being to raise milk standards. Instructors will be sent over the state by the association teaching the best methods of producing and handling milk. The association starts out with a membership of approximately 100, which number it is expected will be materially increased soon. H. W. Ingersoll of Elyria, J. F. Kyger of Oxford and A. O. Newcomb of Burton are the officers and E. L. Frey of Linden Heights and G. W. Black of Mantua form the board of directors.

A new secretary will soon be chosen for the state board of agriculture. George A. Stauffer, the incumbent, has asked Governor Cox to relieve him so that he can return to his business affairs. B. F. Gayman of Columbus, who was secretary of the agricultural commission and of the state dairy and food department before that commission was created, is

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The Taste Is the Test

Where Quality and Economy Meet

Gives better satisfaction than 75 per cent of butter used. Cost one-third less. Try it and be convinced. Order a package from your dealer.

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The Purest, Cleanest Product Ever Churned for Human Food

Every pound churned under triple inspection—U. S. Agricultural Department, U. S. Internal Revenue Department and the Ohio Pure Food Department.

Lowers the Butter Bill without the sacrifice of quality.

Famous throughout thirty states as a Pure, Wholesome Delicious Spread for Daily Bread.

If your dealer does not handle "COLUMBUS" write us direct.

CAPITAL CITY DAIRY CO.
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First Quality Margarine Churners for Thirty-Three Years

under consideration for the position. The salary is $4,000 a year.

Pennsylvania.

The Philadelphia Retail Grocers' Association has joined the forces of reform and invented a scheme to prevent food speculation. It has had its counsel frame a model law and introduced it into the Pennsylvania legislature. The bill provides for a State Food Commission, comprising the State Food Commissioner, the State Secretary of Agriculture and the State Auditor General, and gives it power, when any holder of food is demanding twice "a fair normal profit" to seize the food and sell it to the public at "a fair market price"; settling with the owner within 30 days at the original cost (to the owner) plus the cost of doing business, plus "a fair margin of profit."

South Dakota.

The recent legislature effected a general revision of all laws relating to food, placing them in one general and comprehensive code. This follows so far as practicable the Federal Food and Drugs Act, but contains features not found in the Federal statute. Among these specific provisions are that:

The sale of meat from hogs fed on uncooked slaughter house offal or other substance unfit for animal food is prohibited.

Food is declared to be adulterated if it is not at all times protected from contamination by dust, flies or filth.

Canned fruits or vegetables made from bleached or dried products must be conspicuously labeled to show this fact.

Bleached flour must also be labeled.

Preservatives and harmful substances, such as borax, formaldehyde, salicylic acid, saccharine, fluorine, compounds, and, in meats, sulphurous acid, are prohibited.

No more than two per cent of starch may be used in sausage, and dealers selling sausage containing any starch must display a conspicuous sign telling their customers that they use starch or cereal.

The new law gives the commissioner and inspectors more authority in obtaining information and samples. It makes the taking of orders for future delivery a sale within the meaning of the law, and provides suitable penalties for violations. All old laws covering the handling of foods are specifically repealed, and the new law will govern in all cases after the first of next July.

The state live stock commission has taken up the better milk campaign under an act which authorizes examination of dairy herds at public expense, on petition of three patrons of the dairy, and if any tubercular cows are found they are to be destroyed, and an appropriation of $15,000, immediately available, and $15,000 a year for future years, is provided for payment of stock so destroyed by order of the live stock commission.

Tennessee.

During February the department devoted 92 days to inspection in the field. This is an average of four men in the field for each 23 working days. The inspectors visited 174 towns distributed over 46 counties, inspecting 1,156 food-handling establishments, 53 hotels and 17 soft drink stands. Of the total of 1,156 food-handling establishments visited, those considered in a satisfactory condition amounted to 839. There were 321 sanitary orders issued to establishments deemed to be not in good condition. In the course of these inspections eight lots of food unfit for use were found and condemned. Of the 586 pounds so condemned 20 pounds were oysters, 40 pounds sauerkraut, 155 pounds fresh meat, 31 pounds canned fruit, 10 pounds canned fish, 42 pounds canned meat and 240 pounds cheese. In connection with weights and measures 14 establishments were visited in which 29 weighing devices were found to be satisfactory and 14 were condemned. One measuring device was found to be satisfactory and 59 were condemned.

For violations of the sanitary food law a fine of $10 and costs was imposed in each of eight cases, and for violations of the food and drugs law a fine of $10 and costs was imposed in each of three cases and one case compromised on costs.

An organization of the pure food commissioners and officials of the south central states is to be started at a meeting in Memphis the first week in May. The states that will be represented in the organization will be Alabama, Arkansas, Louisiana, Kentucky, Mississippi, Oklahoma, Tennessee and Texas. H. L. Askew, state commissioner of pure food and

BUY PURE COMPRESSED YEAST

The discussion about using starch in Compressed Yeast has reached the point in the United States of a decision forcing those who used it to declare the fact on the wrapper or label.

That is how we administer the Food Laws in this country.

In Austria where they do things more thoroughly, the chemists of the Royal Experiment Station of Vienna investigated the question for some years and finally reported against the use of Starch in Compressed Yeast for the reason that when mixed with Yeast "STARCH IS LIABLE DURING A CERTAIN STAGE OF THE DETERIORATION TO HIDE PUTREFACTION OF THE YEAST AND THEREBY FAVORS THE MARKETING OF PRODUCTS UNWHOLESOME AND DANGEROUS TO THE PUBLIC HEALTH."

Thereupon the Austrian Government promptly passed a law prohibiting altogether the use of starch in Yeast.

We Do Not Use Starch in Yeast

A. P. CALLAHAN & COMPANY

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drugs, has been largely instrumental in promoting the project and has received material support from the pure food department at Washington. T. N. Tolman, chief of the central division, and Dr. J. S. Abbott of Washington are to be present at the meeting.

Virginia.

The Corn Products Refining Company has filed a petition in the United States District Court in Richmond for an injunction against Commissioner Purcell, to restrain him from enforcing a ruling of his department prohibiting the sale of "Lassies" in Virginia. This action was brought about by the claim of Commissioner Purcell that the label "Lassies" was misleading in that it conveyed the impression that the product was molasses, whereas it is a mixture of glucose and refiners' syrup. He further claimed that the label does not state, as is required under the Virginia law, that the product is a blend or compound of glucose and refiners' syrup.

In its petition the Corn Products Refining Company declares that the product conforms to all national food laws and that the label now being used is accepted by the government and all of the states with the exception of Virginia. They say that the brand is standardized, and to change the name of the syrup would damage the Virginia trade of the company. They ask the court to restrain Commissioner Purcell from enforcing his regulation, declaring it to be an unreasonable and arbitrary exercise of authority on his part and in conflict with the constitution of Virginia and also of certain laws of the state defining how legislative power of the state may be exercised. The company declares that the regulation of Mr. Purcell is an unauthorized interference by this state with authority which the United States Congress has seen fit to exercise over the subject in the National Food and Drugs Act. They therefore ask the court to establish the name and label of "Lassies," and that Commissioner Purcell be restrained from prohibiting the sale of the goods in Virginia.

The Corn Products Company in its petition says that the substances of which "Lassies" is composed are wholesome, nutritious and desirable articles of food for human consumption, free from adulteration, and that the product is in conformity with the laws of the United States, and each and all of the states, including Virginia, relating to adulterated foods; that the label used on "Lassies" is in conformity with United States laws and all states, including Virginia, relating to branding of foods; that the quality of "Lassies" has never been questioned under the law or by the authorities of the United States, or the state of Virginia, or any other state, and that the sufficiency of the standard label has never been questioned under the laws of or by the authorities of the United States, or of any state, except by Commissioner Purcell.

While agreeing that the product is not unwholesome, the dairy and food commissioner contends that the name "Lassies" is misleading in that the impression is conveyed that the product is molasses, the expression "'lasses" being in common use interchangeably for molasses. It is claimed, therefore, that the product is misbranded under the Virginia law because it is branded so as to mislead the purchaser. As the Virginia laws upon which the commissioner bases his contentions are identical with the Federal laws he claims that the label as now used is in violation of United States statutes. The commissioner further contends that the failure to give on the principal label a statement to show that the article is a compound, mixture or blend, without intervening explanatory or descriptive reading matter, appears to be clearly in violation of Paragraph B of Federal Regulation No. 7, regardless of whether or not the name of "Lassies" is misleading.

Commissioner Purcell recently confiscated 114,000 pounds of roasted coffee, which was being offered on the Virginia market. It was being sold at less than fifty per cent of the price of other coffees, and investigation revealed that it had been damaged by water and smoke in a recent fire in Richmond which destroyed a large coffee roasting plant. The commissioner declared that it was unfit for use, ordered its sale discontinued, and destroyed the entire lot.

Crab dredging has attracted the attention of the state fish

RUMFORD
The Wholesome
Baking Powder

A scientific preparation being the result of extended research by the celebrated chemist Prof. E. N. Horsford, for many years Prof. of Chemistry in Harvard University.

Dietetically speaking, Rumford is without fault; as a leavening agent it is perfect; as a keeper it has no superior.

Its Purity is Unsurpassed.

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FOR

Foods, Drugs, Oils

Infinite Variety
Large Capacities
Prompt Deliveries

American Can Company
Chicago New York San Francisco
WITH OFFICES IN ALL LARGE CITIES

Staff Correspondence

commission and measures will be taken to apprehend persons who are engaged in the work. The dredgers think they are within their rights, but a number were arrested recently for trespassing upon state and leased lands. The dredgers are disposed to fight for what they consider their rights but the commission will not abate its efforts to stop the dredging.

Wisconsin.

The assembly judiciary committee has introduced a bill giving cities power to seize in time of public necessity fuel and food to the amount necessary to alleviate conditions inducing the seizure. City common councils will have the power to declare such an emergency exists. Upon vote of the people, the mayor of the city shall have the power to appoint a commission of seven citizens. In times of seizures this commission shall call on the circuit court judge for the purpose of having named a panel of 12 jurors. It shall be the duty of this jury to decide whether or not food and fuel can be taken for public use. In case the jury decides in the affirmative, the commission shall determine the amount to be paid for such food and fuel. The city council shall have the power to pay for such seized matter from the city funds.

The Skogmo bread bill which sought to establish a standard pound loaf of bread and at the same time permit production of lighter loaves not less than seven and one-half ounces nor more than nine ounces, which had been rumored to have carried in the senate, was killed in that body March 28 beyond hope of revival at the present session.

China's Salt Revenue.

A report from Pekin, China, upon the national revenue from salt shows that the net government tax income for last year was $72,440,590, against $69,277,538 for 1915, an increase of $3,163,052. The report stated that all obligations in connection with the revenue were fully met and a surplus of $52,223,000 was turned over to the government.

Cottonseed and Its Products.

This industry has had a remarkable development during recent years. The value of products made from seed grown in 1915 was nearly three and three-fourths times as great as the corresponding value for 1900; and during the same period the quantity of seed crushed increased by 74 per cent, although the amount produced was not much greater in the later year than in the earlier.

From a recent report of the Bureau of Census it is to be noted that of a total of 4,992,000 tons of seed produced in 1915, 4,202,313 tons, or 84 per cent—a greater proportion than that shown for any preceding year—were crushed. The value of crude cottonseed products manufactured during the season of 1915-16 amounted to $180,260,000, of which sum $87,940,000 was contributed by cottonseed oil, $53,860,000 by cake and meal, $26,120,000 by linters, and $12,340,000 by hulls. The quantity of each product except linters represented a decrease as compared with the preceding year, but the total value, as well as the value of each product, except cake and meal, showed an increase.

GOOD-BYE FLY

According to Department of Agriculture Bulletin No. 118: Apply 0.62 pounds Borax to every 10 cubic feet of manure. Apply Borax particularly around edges; sprinkle with 2 or 3 gallons of water. This treatment should be repeated with each addition of fresh manure. Flies lay their eggs in fresh manure. Borax prevents their hatching.

PACIFIC COAST BORAX COMPANY
NEW YORK CHICAGO OAKLAND

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Sugar War Measures Pellagra

THE AMERICAN FOOD JOURNAL

VOLUME TWELVE
NUMBER FIVE

Chicago, May, 1917

$1.50 PER YEAR
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Underwood and Underwood

Sugar Cane Starting Its Journey

Price's Tropikid Says—

Dr. Price's Vanilla Extract

is made from

The Finest Mexican Vanilla Beans

It is, and has been for 63 years,
a guaranteed pure food product

The same high quality is found in Price's

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Price Flavoring Extract Co., - Chicago, Ill.

Eat Plenty of Bread—It's Good For You

The consumption of Bread in this country is constantly increasing.

The Wholesomeness, Healthfulness and Economy of Bread make it the "Perfect Food."

Fleischmann's Yeast Makes the Best Bread.

THE FLEISCHMANN COMPANY
FLEISCHMANN'S YEAST

THE AMERICAN FOOD JOURNAL

—with which was combined on St. Patrick's Day, 1917—

The American Food Manufacturer

There is no higher art than that which tends toward the improvement of human food.—*Henry Ward Beecher.*

ROBERT GORDON GOULD, *Editor*

Vol. XII MAY, 1917 No. 5

Regular Articles Omitted.

Owing to the very considerable amount of text matter bearing upon the critical state of affairs in regard to the food supply appearing in this issue it has been found necessary to delay until the June number the fifth article by Messrs. Lannen and Hickey on "The Food Manufacturer and the Law," and the opening article on water purification, coming from Dr. Harry E. Barnard, food commissioner for Indiana.

The Chemistry of Food Manufacture.

We recently announced the publication of a series of articles on "The Chemistry of Food Manufacture" by Washington Platt, research chemist for the National Biscuit Company. Mr. Platt has been called to his regiment and will be unable to supply the articles in question. He has, however, kindly sent this office his notes and it is possible that they will be used by our editorial staff as the basis for a series of articles on this subject.

Federal Food Control Contemplated.

On the last day of April there was introduced in the House of Representatives by Hon. A. F. Lever, chairman of the Agricultural Committee, a resolution designed to give the Secretary of Agriculture extremely wide powers in the control and management of the production and distribution of food. The resolution states that because of the national emergency existing its purpose is to aid in providing for national security and defense and to provide an adequate supply and equitable distribution of the necessities of life. An appropriation of $25,000,000 is one of its features, that amount being considered necessary to carry out the provisions of the resolution. Also, there are two additional assistant secretaries of agriculture provided for. The resolution gives to the Secretary of Agriculture power to nullify the mixed flour law and to stipulate the percentage of flour which must be obtained by millers from wheat.

Coconut Oil a Good Source of Energy.

The Bureau of Foreign and Domestic Commerce publishes a daily paper in which are printed all consular dispatches. Some of them closely resemble the "Want Ads" of the metropolitan newspapers. For instance, in the April 3d issue of *Commerce Reports* appears the following significant paragraph:

> "An American consul in British Guiana has transmitted the name of a firm of shippers that desires to be put in communication with manufacturers in the United States using coconuts and coconut oil (chiefly the former). It is in a position to supply considerable quantities of nuts. Prices will be quoted f. o. b. Georgetown. The name of the firm can be obtained at the Bureau of Foreign and Domestic Commerce or its district or co-operative offices by referring to file No. 85582."

It is gratifying to know that there are several business concerns in this country already offering the public coconut oil in edible form. It is an excellent food and should be used generally in an effort to relieve the economic strain on butter and lard. It is also to be hoped that the unnamed firm in Georgetown, British Guiana, receive prompt response to its offer as displayed in our governmental pamphlet.

A Proposed Law for Butter Substitutes.

If we are to have any serious food scarcity the first item to be affected will undoubtedly be that type of food known collectively as edible fats. Fats are an extremely valuable food, supplying the body approximately two and a quarter times as much energy as either carbohydrates or protein, pound for pound. The nations at war have had great difficulty in providing an adequate supply of fats. For this reason we consider the publication in this issue of a proposed law for butter substitutes well worthy of careful thought. In the opinion of THE AMERICAN FOOD JOURNAL, the manufacture and sale of wholesome butter substitutes, honestly sold, should be freed from tax control. There are, so we are told, certain practical objections to this attitude. Being by no means convinced that these objections are insuperable we are publishing the draft of a tax-free regulatory law which has been declared by many whose opinions should carry weight to be ample protection against fraud upon the consumer. This JOURNAL agrees with the creamery interests in their oft-repeated statement that they have no objection to oleomargarine when it is sold for what it is, differing only from them in a desire to foster an honest oleomargarine industry rather than to tax it out of existence. There is plenty of room in this country for both high grade butter and high grade margarine, provided both are honestly sold. Any of our readers who have ideas on this subject will be conferring a favor by submitting them to this office.

Professor Jordan on Food Analysis.

One of the most important articles in this issue is "The Bacteriology of Foods" by Professor E. O. Jordan of the University of Chicago. All who are in any way concerned with the legal control of foods will read this article with more than ordinary interest. It probably will not be relished by those who are called upon to handle controversial matters before a court and jury. However, Professor Jordan is a man whose conclusions must be reckoned with as they are based upon wide knowledge of the most far reaching sort. Last month this JOURNAL printed an article by Dr. C. W. Stiles in which it was pointed out that the arbitrary fiat of an academic mind should not be considered conclusive in matters having to do with the wholesomeness of flesh products. The present article by Professor Jordan is in like manner an argument for the necessity from a scientific point of view of acknowledging that there are times when all of many influences must be considered before passing upon the quality of foods.

Amateurish Legislation.

A few months ago this JOURNAL commented upon the very considerable number of legislative bills presented to state legislatures which were so carelessly worded as to work great harm to the food industry. Probably this peculiarity is unintentional—perhaps not. But at any rate it is a source of real danger and every manufacturer and food control official should at all times be on his guard against such proposed legislation. Despite the efforts of those legitimately interested in the situation the legislature of Georgia, in its zeal to outdo its sister states in the prohibition of the consumption of alcohol, has passed a law which if strictly construed will prohibit in that state the manufacture, sale or possession of flavoring extracts whether for domestic consumption or for use by soda-fountain supply houses, bakers, ice cream manufacturers, confectioners and, indeed, all others who normally make use of flavoring extracts. It will kill the use of mince-meat and all other edibles containing insignificant amounts of alcohol. And, in like manner, it seals the doom of all harmless home remedies such as arnica, Jamaica ginger and all the rest which have been an integral part of the household medicine cabinet from time immemorial. Acting on behalf of certain of his clients Mr. Thomas E. Lannen has requested the governor of Georgia for a hearing, but has been informed by the attorney general that the matter is now one for the courts to pass upon.

Secretary Houston's Letter to the Senate.

In conformity with the conclusions reached at the St. Louis meeting of agricultural authorities, described elsewhere in this issue, Secretary of Agriculture Houston recently submitted to the Senate a formal report upon the food situation. Some of the salient features of the Secretary's report have been embodied in a bill submitted to the House of Representatives by Representative Lever, chairman of the Committee on Agriculture, and others are to be included in a bill to be submitted later on by Chairman Lever. In addition to those in the Lever Bill just mentioned, among the more important features are the recommendation that the right to fix maximum and minimum prices shall be placed in the hands of the Council of National Defense or the President, or both working together. National prohibition is to be a possibility at the President's discretion. Waste and deterioration of food and hoarding food for speculative purposes are to be declared unlawful and penalties therefor laid down. A complete food survey of the country is to be authorized. Absolute control of the growing and distribution of seeds is to be given to the Department of Agriculture, and it is to be made a felony for any person to use other than the standards prescribed by that department. The right to license the manufacture, storage and distribution of foods and feeds is to be given the Secretary of Agriculture and the seizure of foods in transit likely to spoil is to be authorized.

Butter Substitutes.

Full page newspaper advertisements over the signature of the National Dairy Council tell us that there is no substitute for butter. Just what meaning this statement is intended to convey is not entirely clear. Of course, as it stands it is not to be regarded seriously. Actually there are *many* substitutes for butter, as the National Dairy Council well knows. Regarded in a Pickwickian sense, probably the thought should be that in the minds of the dairymen there is no table fat quite so desirable as butter—an eminently proper opinion for a dairyman to have. However, the action of the National Dairy Council in advising the housewives of America to cook with butter is more than salesman's "patter" and is most certainly open to criticism. Economically it is an absurdity as every well-trained housewife knows. Moreover, at this particular time, with a scarcity of edible fats in prospect, and bearing in mind the pitiful expedients regarding edible fats adopted during the past three years by all the countries at war, the suggestion of the dairymen that the housewife cook with butter—the most expensive table fat we have—is little short of dietetic treason. The National Dairy Council in its advertisement states that it believes its mission to be patriotic. As a matter of fact, it came into being for the sole purpose of fighting oleomargarine and other butter substitutes, a fact which should be made known to the housewife because it has a bearing upon every statement made by the Council. The dairymen are well organized, are well supplied with money and have great influence at Washington and the various state capitals. For some months they have been planning an advertising campaign. The initial advertisement in this campaign, appearing in *The Chicago Sunday Tribune* of April 29, is a most curious mixture of sophistry, sanctimonious hypocrisy and advice which is directly contrary to that being sent out by the Federal Government and directly contrary to the consensus of opinion among all disinterested dietitians.

War Tax on Food.

The Committee on Ways and Means is about to present a bill to Congress. For some time it has been feared that excise taxes would be levied upon sugar and other basic foodstuffs. The latest word from Washington seems to indicate that all such proposals have been definitely rejected. This is as it should be. A nation going to war and being asked by its allies to furnish food, merchant ships and money, rather than soldiers, should most certainly exhaust every possible other means of raising revenue before taxing the very articles we are supposed to furnish with a prodigal hand. It is possible that non-basic foodstuffs, such as confectionery, chewing gum and beverages will be asked to assume a special war tax. While, in the opinion of this JOURNAL, it is a mistake to regard candy as other than a highly valuable food, the law makers at Washington probably will insist upon considering this product as properly subject to taxation upon the ground of its being a luxury. There are many who claim that the traditional habit of imposing special war taxes upon specific industries is a relic of a bygone economic era. In their opinion it would be much better to equalize the imposition of war taxes by confining them to incomes either personal or corporate. This argument has much to support it although it is undeniably the fact that a large proportion of the population—those who receive salaries sufficiently high to be included in any probable extension of the income tax—are at present finding it extremely difficult to make both ends meet. As is invariably the case during times of rapid economic changes those at the two ends of the economic scale, the owners of capital and the laboring men, alone have profited because of the increase in activity due to the war. A very considerable part of our people placed midway in the scale have not so profited, and should they be forced to pay an income tax it would indeed go hard with them. They can and, no doubt, will cheerfully get along without the little luxuries they have become accustomed to but they certainly should be permitted to eat tax-free food and be allowed to keep in their entirety their none too generous salaries.

The Food Problem a Question of Dietetics.

While this JOURNAL would be the last to attempt to minimize the very real danger of a shortage in food with which we are confronted, it must not be forgotten that a great deal, a very great deal, can be accomplished in the way of extending the food supply by the simple expedient of making practical use of our present knowledge of dietetics as it applies to our present supply of foodstuffs. The matter of nourishing the human body has been reduced to mathematics. Fuel for the body is expressed in terms of heat or energy, the word Calorie being employed as a measuring unit. What the British thermal unit is to the furnace man the Calorie is to the physiologist. To be sure, the calorific value of a food does not take into account its relative amount of protein, which is necessary to repair tissue. Neither does it concern itself with the much discussed although but little understood vitamines; nor with the gustatorial attributes of food. There is undeniably a certain nutritive value to the esthetic qualities of food, but it is indeed easy to overestimate that attribute. The human digestive apparatus is not the esthete that many bon vivants would have us believe—as any physician with his devious ways of introducing nourishment into the body can testify. The actual food needs of the average adult are agreed to be in the neighborhood of 3,000 calories per day, about 10 per cent of which should come from protein. Probably every reader of this JOURNAL is eating fully 50 per cent more than his body actually calls for. There are many who claim that there would be, for example, less pneumonia if we ate less. All of which goes to show that by balancing our ration as carefully as an intelligent farmer feeds a herd of swine, coupled with the use as food of all things suitable for food, we can, without plowing up a single lawn, greatly increase the available food supply. Certain members of the animal kingdom are carnivorous and certain others are herbivorous. They are limited in their diet and a food scarcity can easily be a real menace to them. Man makes use of a mixed diet and, indeed, is well-nigh omnivorous. In times of plenty there is perhaps no great harm done by establishing as a national diet a certain few food products selected from the many. In times of scarcity our racial instinct should not let us forget that we can, if necessary, greatly diversify our diet.

Sweet Are the Uses of Adversity.

Whatever happens to this nation during the course of the war one thing is certain and that is that we shall gain a knowledge of the true inwardness of food which will stand us in good stead for all time to come. Since its first occupation by the colonists this country has never really "worked for a living." In all lines of endeavor, food production included, we have simply skimmed the surface. Our lumbermen have gone through the most wonderful forests imaginable and have left behind them a desolate collection of stumps which brings tears to the eyes of any forester. Our miners have worked the richest ores and allowed those of lower grade to accumulate in the sump pile in a manner abhorrent to any mining engineer. And, most important of all, our farmers raise 13 bushels of wheat to the acre as contrasted with 30, or more, raised by the agriculturists of the old world. In the utilization of our products we have been equally prodigal. From the wheat berry our millers extract about 70 per cent of flour against a possible 80—simply to cater to a demand on the part of the housewife, illogical and bred of ignorance. She wants a white flour and so the millers give her a white flour by selling as feed rather than food a by no means insignificant part of the wheat kernel. We have allowed a number of baseless prejudices to become fixed until they now have the tremendous force of tradition, than which there is nothing harder to dislodge from the collective mind of a nation. Those who would sell certain primitive foods have succeeded in implanting in the mind of the public the idea that there is an odor of disrepute attaching to substitute, possibly synthetic foods, equally wholesome, equally nourishing and equally palatable. The reactionary sneer when art in the food industry is mentioned. In order to protect special industries there have been spread abroad taboos against appropriate substitute. For the past half century or so laws have been passed so worded as to *restrict* rather than to *expand* the food supply of the nation. Those who would offer the public wholesome compounds or substitute foods, sold honestly, have been taxed out of existence by a complaisant Congress. It may have been good business for the special industries involved, but it was rank injustice to all other food manufacturers and it is now being realized to have been a flagrant outrage upon the consumer. Now our allies ask us to feed the greater part of the so-called civilized world. We can do it; but the first thing we should do is to examine every law touching upon food and submit it to the acid test of whether or not it is of the hampering sort. And there are many such.

The Marvels of the Microscope.

At the last regular meeting of the Chicago section of the American Chemical Society the guest of honor was Dr. E. M. Chamot of Cornell University, one of the foremost microscopists now living. Dr. Chamot is an earnest advocate of more widespread use of the microscope in the industries, and no doubt his enthusiasm will spread as our laboratory workers become more proficient in the use of that instrument. There is something of the miraculous in the ease and celerity with which a skillful microscopist analyzes materials. To gain an insight into the possibilities of this method of analysis a description of one of Dr. Chamot's many excellent lantern slides is sufficient. Picture to yourself a piece of glass 3 inches long and 1 inch wide across which are three tiny, smearlike streaks, each streak showing evidences of the application thereto of some solvent which had absorbed a fractional part of the streak. Just below this reproduction of a microscope slide is a full qualitative analysis of the three metallic preparations sampled by the streak method—an alloy of brass and lead, monel metal and an antifriction compound. Not only are all elements present enumerated, but the absence of all other substances is certified to. And what is more, the length of time involved in each analysis is stated to be 15 minutes in the first two cases and 30 minutes in the case of the third analysis. With the modesty of a true savant, Dr. Chamot claims that this sort of thing is simple and easy of accomplishment. One cannot but hazard the suggestion that while it may be simple and easy of accomplishment for him it might not be for the average analyst, calling as it does for a vast amount of patiently acquired special knowledge and technique. However, the interesting feature is that it *is* possible of accomplishment. That being so, it should be employed more often than is now the case. Scientific control in the food industry has come to stay. Many routine determinations can satisfactorily be made microscopically. Laboratory analyses involving the use of elaborate apparatus, considerable amounts of many chemicals and from two to three hours' time can be very closely approximated by a moment's glance through a microscope. The argument is all one way provided the manufacturer can obtain the services of an able microscopist. According to Dr. Chamot, the food industry offers unusual opportunities for the working out of methods of microscopical analyses; that branch of microscopy at present not being as well developed as are the metallurgical and other branches

The Food Situation.

During the past month the newspapers have been fairly aglow with suggested means for increasing the food supply of the nation. A full report of the conference called at St. Louis by Secretary of Agriculture Houston is printed elsewhere in this issue and should be carefully read. Mr. Herbert C. Hoover has been asked by the Council of National Defense to assume the chairmanship of a national committee on food supply the purpose of which shall be to stimulate production and to prevent unreasonable price advances. Mr. Hoover has until recently been in charge of the distribution of American supplies in Belgium and is well equipped for the work at hand. His assistant is Professor B. T. Galloway who both at Washington and at Cornell University has had much experience in matters agricultural. Working in conjunction with this committee are sub-committees composed of departmental heads which committees, in turn, are in close touch with other sub-committees composed of local government officials. A complete census of all available food is even now being taken to the end that as soon as possible we shall know how much food

Wholesale Grocers Defer Convention.

The National Wholesale Grocers' Association has sent out the following telegram:

"Owing to most critical war conditions which possibly only few of us realize the magnitude of and after spending several days in Washington, it is my opinion that our highest patriotic duty requires that we defer our convention and devote our efforts and resources to channels of defense. With a desire to serve our Government in the best possible manner, and after carefully considering how we could best do this, I wired every officer, executive committeeman and advisory committeeman, suggesting that we defer the convention which, under existing conditions, cannot be held in Washington, either at the time planned for our meeting or in the immediate future, as it is our purpose to serve our country first, and in doing so conserve all of our resources. The replies from our officers, executive committeemen and advisory committeemen suggest that a meeting of the executive committee be called for Monday, May 14, at which time plans will be devised for the proper carrying out of our affairs. As our fiscal year closes on June 1 the proposed meeting of the executive committee will carry on our affairs in harmony with our constitution. While it seems unfortunate that we should forego an annual convention we must do our utmost for conservation and defense. Please give this information publicity among wholesale grocers."

THEODORE F. WHITMARSH,
President National Wholesale Grocers' Association of the U. S.

A New Aswell Bill

JAMES B. ASWELL.

DURING the early days of May, Congressman James B. Aswell, of Louisiana, will introduce in Congress a bill to authorize agricultural colleges and experiment stations to investigate and teach, free of license and tax, the art and science of combining vegetable and animal oils with milk and cream into palatable foods.

He is of the opinion that in the national food campaign no question is of more importance than the matter contained in his bill. He is planning to make a vigorous appeal, especially to the South, for coöperation and assistance in the realization of this great idea. We will recall the fact that there is a tremendous world's shortage of all kinds of edible fats and that it was because of a similar emergency that France, in 1871, offered a reward for a practical way of combining animal and vegetable oils with milk and cream, which resulted in the creation of margarine, now accepted throughout the world as a food necessity, but knowledge as to the manufacture of which is limited in this country.

The arguments of Mr. Aswell are based upon the present knowledge concerning edible fats and oils and are epitomized in the following paragraphs:

Certain substances have been found in milk, apparently of lipoid nature, necessary in human food to maintain health and growth. It has also been found that the seat of this "food accessory" is not in the fat itself but the casein solution mixed with it; and that margarine, produced by churning vegetable oils in milk carries a higher percentage of this "food accessory" than is carried in butter, the percentages being in butter 0.4 of 1 per cent and in margarine 0.975 of 1 per cent. Prof. E. V. McCollum has found by experiment that 5 per cent of butter added to otherwise desirable food furnishes about the required amount of this accessory food substance to promote growth.

Dr. William Brady: Peanut oil is as nourishing as olive oil. Food value for food value, peanuts are cheaper than bread.

Senate Document No. 114, Fifty-sixth Congress, Second Session, Adulteration of Food Products, p. 47: Prof. Atwater says that margarine is perfectly wholesome and has a high nutritious value. Prof. Schweitzer states that careful physiological experiments reveal no difference whatever in palatability and digestibility between butter and the brand of margarine which he has examined. Prof. Baker considers margarine quite as valuable a nutritive agent as butter. Prof. Johnson says that for all ordinary and culinary purposes it is the full equivalent of good butter made from cream. He regards the manufacture of margarine as a legitimate and beneficent industry. Prof. Jolles says that pure margarine is as digestible and nutritive as pure butter. Dr. Ames declares that the manufacture of margarine in properly constructed factories is much cleaner than the manufacture of butter. He says: "It should be more generally used and not looked upon as an inferior article and makeshift for butter, when it is really superior."

A NEW DUTY FOR SOUTHERN AGRICULTURAL COLLEGES.

THE SOUTH PRODUCES ANNUALLY

	Pounds.
Cottonseed Oil	1,450,000,000
Peanut Oil	50,000,000
Creamery Butter	10,000,000
Margarine	1,000,000

HOLLAND, ONE OF THE GREATEST DAIRY COUNTRIES IN THE WORLD, PRODUCES

Vegetable Oils	All imported
Margarine	286,000,000 lbs.

Twenty pounds of oil properly churned in milk enough to make one pound of butter will make about twenty-three pounds of margarine.

The food value of vegetable fats, according to U. S. Department of Agriculture Bulletin No. 469 (p. 7) is 4,080 calories to the pound; when these vegetable fats are churned in milk with animal fats, thus making oleomargarine, the food value is 3,500 calories to the pound. The food value of butter, on the same authority, is 3,490 calories to the pound.

The digestive availability, as shown in U. S. Department of Agriculture Bulletin No. 505 (p. 18), of peanut oil is placed at 98.3 per cent; of cottonseed oil at 97.8 per cent; of olive oil at 97.8 per cent; of cocoanut oil at 97.9 per cent, and of sesame oil at 98 per cent.

U. S. Department of Agriculture Bulletin No. 507 (p. 18) gives the digestive availability of butter fat in cream at 96.9 per cent and of brisket fat at 97.4 per cent.

Those parts of the South devastated by the boll weevil are beginning to produce large quantities of peanuts from which it is said the most excellent food oil is expressed and for which a good and permanent market should be provided. The peanut hay is easily and profitably used for cattle and the peanut cake or meal is high class feed for all kinds of livestock. Hogs are necessary to use that portion of the crop left in the ground.

Those sections not yet reached by the weevil must be relied on to supply the necessities for cotton. For many years, and even now, to some extent, a mysterious prejudice has existed against cottonseed oil as food, but the most exhaustive investigations by the highest authorities have demonstrated that cottonseed oil has food value fully equal to that of peanut or olive oil or any of the animal oils. Cottonseed meal has also been demonstrated to belong among the high class concentrated feeds. Millions of tons, both of the oil suitable for food purposes and the meal and hulls suitable for feed purposes, are produced annually by Southern people. An overwhelming majority of them are engaged in such production.

As an outgrowth of these feed productions and the adaptability of the climate, the growth of cattle for dairying purposes, and of cattle and hogs for slaughtering purposes, is steadily increasing, calling for new activities and markets. Encouraged by this call a number of creameries have been established and several packing houses. These packing houses ought to produce certain quantities of oleo oil and neutral lard, which are the choicest food oils from the beef and the pig.

The oils referred to, viz: peanut, cottonseed, oleo and neutral, are relatively newly discovered foods. They are all nearly tasteless. In order, therefore, to be of the highest value they must be combined with other food materials. While each of them possesses a greater energy producing value than butter, they do not possess the desirable flavor of properly made butter. They will, when properly churned in milk, however, combine with butter, to produce a pleasing, palatable table food of high nutritive value. This combination is legally designated as oleomargarine and can not lawfully be made except under inspection of the Federal Government.

Due to conditions which need not here be detailed, Southern butter and Southern oils are each marketed in their simple forms, and, of course, are less valuable both to the producer and the consumer in such forms, just as all other marketable products. There has been no education of Southern people either as to methods of producing desirable combinations of these food fats, or the value of such combinations. This industry has been developed only in the great dairying and packing sections of the country, and vegetable oils are shipped to those sections and the people of those sections largely use the product. Every oleomargarine plant must have dairy routes to supply the large quantities of milk and cream needed.

Here in the South all the elements of margarine are produced by practically all the people. We do not know how to use them in combination. The agricultural colleges were founded primarily to develop agriculture. They owe an impartial duty to each class of producers—whether they be producers of peanut oil, or cottonseed oil, or animal oil, or butter—to teach the children of the South how to produce the largest quantities of raw materials and the most skillful and useful combinations of these materials.

In the matter under consideration it clearly appears that practically all Southern people have a common interest—the cotton planter, the peanut producer, the livestock raiser, the consumer. It seems plain, therefore, that the southern agricultural colleges should consider their duty and their opportunity to teach those members of the student-body who desire to learn the scientific and practical methods of producing from the materials under consideration the best forms of food possible, rather than limit their efforts to the one item of butter.

If this duty and opportunity are clear, then the means must be found. To this end the need must be brought to the attention of the country. When fully advised of any line of usefulness along which these colleges may travel, the people have generously opened the way. No doubt they will do so in this instance and there is no doubt that the United States Department of Agriculture, under whose supervision all margarine must be made, will lend every possible susport.

To do this new work will require some extension of the creamery equipment of the various colleges. It will enable the colleges to co-operate much more substantially with their dairy routes. It will require but little, if any, modification of the agricultural, livestock and chemical departments.

Shall the United States, and particularly the South, lose this opportunity to benefit by the experience of France in a great war emergency not only to conserve but to increase the use of its wholesome vegetable and animal oils, milk and cream? Should we not take fullest advantage of the war-born invention which has been proved by forty-five years of experience to be one of the greatest sources of food and should we not teach its manufacture in the broadest possible way, that our people and the people of all friendly nations may have an increased supply of the edible fats which are an absolute necessity to life itself?

Food Conservation by State Officials—A Symposium by Our Readers

Indiana State Board of Health.

The war time value of food departments with their expensive laboratories and well organized inspection forces will soon be determined. The routine police work of enforcing pure food laws, towards which many departments bend their energies, will be worth little except as it compels honesty and so prevents petty thieving. If food executives will use their chemists to work out problems of nutrition and their inspectors to organize the farmers to grow larger crops and housewives to buy more carefully and throw less food in the garbage can, they will do a very real service.

For years the State Colleges of Agriculture have been preaching scientific farming. They have taught the value of seed selection, perfect seed beds, adequate fertilization, complete cultivation and the conservation and utilization of the finished crop. But progress has been slow. It is not easy to force new ideas on such a conservative citizen as the average farmer. Under the intense stimulus of the call to patriotic service he is rallying to the battle cry of more food for our allies and our army. At this psychological opportunity every food official should be on hand to direct his efforts; to point out what crops are most needed; to devise plans to save perishable fruits and vegetables; to foster the larger use of cold storage. The splendid progress made of late in conserving the egg crop, and in stimulating the production of better cream and butter of a higher grade may be pushed much farther under the double incentive of high prices and a much needed service.

Our most valuable crop is corn. Of the hundreds of millions of bushels our fields produce we eat about three per cent. The rest of the crop is fed to animals either to keep them in condition to haul the plows and make another crop of corn or to fatten hogs and beeves. The food official may well point out the necessity for a more liberal use of corn in the diet. Several have already started "Eat More Corn" campaigns. Commissioner Barney of Iowa deserves great credit for the splendid work he has done among the cooks and bakers. But it will take more than ordinary effort to change white bread eaters into lovers of corn meal Johnny cake. And in advising the larger use of corn the food officials will not overlook the necessity for balancing the ration by the use of unmilled rice or other foods that contain the protein elements lacking in corn but so necessary to proper nutrition.

Indeed it seems to me that the food officials, food authorities in their states, may well bend every effort towards teaching the practical principles of nutrition that are still so little understood and even less followed out.

We are not facing famine. We shall have enough to eat next winter. But prices will be high and some staples may be scarce. If the food departments can help to keep prices down by stimulating production and to stop wastage by wise counsel they will render a more valuable service than they can hope to give in the routine of law enforcement.

April 17, 1917. H. E. Barnard,
Indianapolis, Ind. *Commissioner.*

State of Illinois, Food Department.

As Dairy and Food Commissioner of this state, realizing the necessity of preparedness in connection with our food supply, we are encouraging and assisting the children to become producers as well as consumers of food.

With the assistance of the Illinois Bankers' Association and the co-operation of the county superintendents of schools, we have distributed within the last three months over 2,600 dairy heifers to as many school children in forty two different counties of our state. Co-operating with Mr. Tobin, county superintendent of schools, we are now planning a campaign of this kind for Cook county, and feel that the success of this movement will depend largely on the support of the Chicago press. W. Scott Matthews,
April 14, 1917. *Commissioner.*
Chicago, Ill.

State of Idaho, Office of Dairy Food and Sanitary Inspector.

The views of John K. White, food inspector of Idaho, are contained in a letter written to the governor of the state, in which he said, in part:

All farmers, stockmen and especially dairymen should be asked to discontinue the practice of selling young calves to be slaughtered and sold as veal. An appeal should be made to the ultimate consumers to refrain from ordering veal from their butcher and the butcher solicited to discontinue the slaughter of calves for veal. Most everyone must be familiar with the great number of calves slaughtered to supply the demand for this article of food and just a moment's thought will show the immense economic loss in our more substantial meat supply.

I might also call your attention to the great number of animals slaughtered by farmers and ranchers in this state. This practice results in a decided economic loss in fats and by-products.

I have recently arranged through our representative in Congress to have distributed throughout this state 50,000 copies of a bulletin issued by the United States department of agriculture treating on the subject of producing, handling and marketing of eggs. This matter will also be discussed in a bulletin to be issued by this department with particular reference to the conserving and preserving of this valuable food product, by the people themselves, rather than by commercial cold storage.

Another subject that should appeal particularly to the housewives of Idaho is the food waste in the household. For partial, immediate and future relief every individual and community should consider the limitation of waste. As a nation we seem to have a disdain of economizing.

The food waste in the household results in a large measure from bad preparation and bad cooking, from improper care and handling, and in what might be termed well-to-do families, from serving an undue number of courses and an overabundant supply and failing to save and utilize the food not consumed.

I have taken up the matter of calling a special conference of food commissioners of the northwestern states for the purpose of discussing and formulating plans of co-operation in conserving our food supplies. I am also suggesting to the president of the National Association of Federal and State Food Officials that this question be made the primary subject at our next annual meeting. J. K. White,
Inspector.

State of Iowa, Dairy and Food Commission.

The Governor of this state has recently appointed a food commission composed of one member from each congressional district who will devote their energies to stimulating an increased production of Iowa agricultural products. The Governor has asked the General Assembly to appropriate $100,000 for the purpose of carrying on this work. The bill appropriating the $100,000 recently passed the state senate, but yesterday it failed to pass the house.

As near as we can learn, the reason for its failure to pass in the house was due to the fact that the farmer members of the house were of the opinion that Iowa's agricultural products could be increased better by the organization of a commission to secure more and more competent farm help, rather than by devoting their energies to instructing the farmers how to get an increased yield as a result of increased acreage and different methods of crop rotation.

We have hesitated in corresponding with you relative to the new legislation affecting food matters in this state, for the reason that at no time during the present session of the General Assembly have we been certain as to just what would be done. However, the General Assembly adjourns this evening and the first of next week we shall be glad to prepare for you material which will show the changes in all of the bills being enforced by this department.

April 14, 1917. Wm. H. Harrison,
Des Moines, Ia. *Acting Deputy Commr.*

Kansas State Board of Health.

I do not know that state departments can do very much to help solve this serious problem, unless it be by encouraging through such means as may seem feasible the production and the conservation of all foods and food supplies:

I am convinced, however, that the federal government might do certain things which would be a tremendous help toward solving the food problem: First, by prohibiting the use of cereals or grains in the manufacture of intoxicating liquors; this would release an enormous quantity of food products for legitimate use, and, what is of equal importance, put out of business one of the greatest enemies to social order and physical and economic fitness with which this nation is confronted in these troublesome days. Second, by putting the food gamblers out of business through stringent legislation. Third, if necessary, but only as a last resort, by the government controlling the prices of food products. S. J. Crumbine, M. D.,
April 21, 1917. *Secretary.*
Topeka, Kans.

State of Minnesota Dairy and Food Department.

Governor Burnquist recently appointed a committee consisting of members of various state departments and private citizens for the purpose of locating the resources of the state and to report to a committee of safety (not yet appointed) of which the Governor will doubtless be chairman.

April 17, 1917. J. J. Farrell,
St. Paul, Minn. *Commissioner.*

State of New York Department of Agriculture.

It is the view in this state that a practical, systematic and efficient effort be made to increase the annual production of food products in the state. I assume that this view is entirely in harmony with the federal authorities and with the authorities in the other states. With that as an object a movement has already been inaugurated by the Governor of this state, a brief outline of which is as follows:

First, he has appointed a committee composed of nine men to perfect plans to encourage such production. The legislature has appropriated the sum of $500,000 to carry out the plan. This committee is now at work endeavoring to get information and impart information to the producing classes which it is believed will ultimately result in such increase. A blank form is to be sent to every farmer in the state asking for information both as to what he is doing and desires to do and asking what he needs by way of help to produce the result. The requests for information from such farmers cover the following points:

1. The help he now has and the help he will need.
2. The seed he has on hand for sale and the amount and kind he desires.
3. The spray materials wanted.
4. The kind and amount of fertilizer wanted.
5. The kind and amount of machinery needed.
6. The live stock he has for sale and the live stock wanted. This information is asked for the purpose of finding where there may be a surplus or a shortage in either animals or commodities, with the end in view of attempting to alleviate conditions and rendering aid where aid is needed, and with all, to encourage increased energy and activity along the line of production.
7. It is hoped and believed that by this means sufficient information will be at hand within a short period of time so that a fairly accurate estimate may be made of the probable production in this state during 1917 of the farm products asked about; that this will form a basis for comparison with crops in former years, and will be a proper basis upon and from which to work to produce the desired results.

It is believed by these methods that the state will gain such information as to be able to render necessary assistance as will increase the production of food products in this state during the coming year by a goodly percentage. It is believed that if this can be accomplished in each state in the Union that the production will be such as to avert any possibility of a shortage of food supplies even in this crucial time. It is New York's intention to do her full share in the work which public interest now demands.

April 19, 1917. George L. Flanders,
Albany, N. Y. *Counsel.*

Dairy and Food Division,
The Board of Agriculture, Ohio.

The intention of the pure food laws and the duties of the food commissioners are to look after the quality and standard of the food products manufactured or offered for sale, and according to my views do not give officials any authority to interfere wtih the price so long as they are sold by true weight or measure.

The food question is going to be one of the most serious that will confront the American people in the next few years and I think every good citizen should give all the assistance possible to relieve the situation. The food commissioners can do good work by seeing that the people are securing what they pay for. That is, for illustration, not to allow unscrupulous people to sell compounds or substitutes, representing them to be the genuine articles. For instance, lard that contains from 3 to 10 per cent of beef stearin, cotton seed oil or other cheaper products; syrup sold as maple or cane and maple that only contains a maple flavor; hamburger and sausage containing a large per cent of cereals and thereby allowing considerable amount of added water; and other similar foods that are sold just as high as the pure article.

I believe the sale of milk has been abused as much as any other food commodity by removing part of the cream and in some instances adding water. Water and air are two things that should be free, and it is not right to allow greedy, unscrupulous people to impose on the public, and it is the duty of the food commissioner to see that they are not imposed upon. By enforcing the laws they can assist at least to the extent of seeing that the people are getting what they are paying for.

The food commissioners can help to reduce the cost of living by issuing circulars, and by personal interviews with their inspectors, advising dairymen and manufacturers to use better means for caring for their products, more sanitary and better methods in their equipment, and utilize all the by-products from their plants.

As I stated before, it is the duty of every citizen to give his best efforts and assistance to increase the production of food supplies. The man behind the hoe who is giving his best effort and energy to feed the people is doing as noble and honorable work in his efforts to maintain life as the man behind the gun who is using his efforts to destroy life, and it would be impossible to have an efficient army that was not properly fed. Hence by using every effort at our command to increase the products of our land we increase the efficiency of our soldiers. T. L. Calvert,

April 18, 1917. *Chief of Division.*
Columbus, Ohio.

Pennsylvania Department of Agriculture
Dairy and Food Bureau.

The United States Department of Agriculture as well as the state departments has already inaugurated a campaign for an increased production of all kinds of necessary foods for the people, which means, as I view it, that we will have enormous crops which must be cared for.

The food control officials should start a movement tending to the organizing of women's clubs to take care of the fruits and vegetables by having the homes jar and can at least all of such products that will be needed in their own homes, in order that the factory output can be used exclusively for the army at home and abroad.

There is a tin shortage this year, so that tin containers will be very hard to get. This means that bottles, crocks and all like receptacles that can be used should be utilized, and every home should be turned into a food canning and jarring establishment.

Something must be done to stop the waste. The apples, cherries, pears, tomatoes and other products that are allowed to rot would feed an army for a considerable time. This must be cared for, and the products preserved by canning, jarring or drying, and in this way stop the waste.

April 16, 1917. James Foust,
Harrisburg, Pa. *Commissioner.*

State of South Dakota
Food and Drug Department.

First, state food officials and inspectors can co-operate with the federal authorities in making the necessary food survey, or inventory, in case the Government finds such action necessary.

Second, state food officials and inspectors can render good service in inspecting foods to be supplied the army and navy. All food purchased for such purposes might be centralized at one or more points in the state and held for inspection, pending acceptance by the Government.

Third, by means of bulletins and newspaper publicity much educational work can be done along the line of food conservation and economies in the use of food.

Fourth, food departments, like all other governmental departments, should be operated at this time at the minimum cost consistent with efficient work in order to reduce as far as possible the burden of taxation. Greater diligence than normally needed must be used in case any serious food shortage arises on account of the substitutions and adulterations which will certainly result. Guy S. Frary,

April 25, 1917. *Commissioner.*
Vermilion, South Dakota.

Wisconsin Dairy and
Food Commission.

I would suggest the following:

1. Stop the enormous waste in food and food products.

We know that there is a great deal of food wasted not only in the homes but where the product is produced and in the course of its transportation to the consumer. The food commissioners should have distinct jurisdiction over all foods stored in cold storage houses or otherwheres.

2. The high prices of foods will cause more or less adulteration and careful supervision should be made as to the quality of the foods being sold.

A great many things can be said on the question, but as the subject is a new one, my big point as stated above is "Stop the waste." George J. Weigle,

April 19, 1917. *Commissioner.*
Madison, Wis.

A Proposed Law for Butter Substitutes

An early revision of the law controlling the manufacture and sale of butter substitutes is inevitable. While some representatives of the creamery interests are asking for new and more stringent laws to limit further the sale of colored margarine, a large part of the public is beginning to protest against a tax which penalizes a cheap and wholesome substitute for a high priced staple food. The two principle objects of any new law should be, first, either to remove or to place at the lowest practicable figure all taxes on margarine, whether colored or uncolored, and second, to protect the public and the butter makers against the sale of colored margarine as butter. In this connection, the following proposed law is of interest. It comes to us through the courtesy of a Chicago attorney who is well versed in food legislation.—*Editor's Note.*

R. G. Gould, Editor,
American Food Journal,
Chicago, Illinois.

Dear Sir:—

At your request I am submitting herewith a form of a butter substitute bill for introduction in Congress which, I believe, will appeal to many of those who are interested in remedial legislation, and who favor the doing away with of all taxes on margarine. A bill similar to this was, in the latter part of 1913, introduced in Congress by former Congressman Buchanan of Texas, but was given little or no consideration at that time by the Committee on Agriculture because it held no further hearings on oleomargarine. I am not recommending it as superior to the Lever Bill or other similar revenue measure but believe it is entitled to serious consideration.

When the first oleomargarine act was passed by Congress in 1886, a flat rate of tax of two cents per pound was placed thereon, ostensibly as a revenue measure, in order to place the administration of the law in the hands of the Treasury Department, which was supposed to have better facilities for enforcing the law and preventing fraud at that time than the Agricultural Department. Indeed, it was stated by former President Cleveland, in approving the bill, that one of the objects of the enactment of such law was to give the Government supervision over the manufacture of butter substitutes, to ascertain the character and purity of the ingredients, and to prevent fraud. In order that the Treasury Department might be enabled better to supervise the manufacture of oleomargarine, ascertain the character of ingredients, etc., the Act of August 2, 1886 (Sec. 14) created in the Bureau of Internal Revenue a Division of Chemistry particularly for that purpose. Since that time, and especially since the passage of the Pure Food Law of 1906, the U. S. Department of Agriculture has not only grown vastly in importance, but has acquired through various Acts of Congress, many greater powers for the supervision of the manufacture and sale of other food products entering into inter-state and foreign commerce. Opinions vary as to whether or not the U. S. Department of Agriculture has greater facilities, at the present time, than has the Treasury Department for the supervision of the manufacture and sale of margarine and the prevention of fraud in respect thereto.

Oleomargarine has been proven, beyond all doubt, to be a pure, wholesome, food product, and a palatable and nutritious substitute for butter. It is very greatly in demand throughout the country because it is more economical for use than butter, and in many parts of our country it will keep fresh and sweet for a longer period than butter. It is used principally by people who feel that they cannot afford to pay the price for butter, and it should not, therefore, be taxed when sold for exactly what it is.

The present Oleomargarine Law, under the Act of May 9, 1902, because of the dual rate of tax provided therein, taxing colored oleomargarine forty times the amount of uncolored oleomargarine, is a great incentive to fraud, and because of the very lax administrative features in the law and the permission to sell the product in bulk form without being sealed by an official Government strip stamp, is a failure in respect to the detection and prevention of fraud in the sale of the product. Remedial legislation is absolutely necessary. The creamery butter organizations, which have absorbed the entire butter industry to the exclusion of the ordinary dairy farmer, propose either to tax colored oleomargarine out of existence, or, by an Act of Congress, to limit its color to white. Neither of these plans will, in my opinion, eliminate fraud, but on the contrary both will increase fraud in the manufacture and sale of substitutes for butter. The poor man, who, for economical reasons, must buy substitutes for butter, should have the same right to obtain such substitutes salted and colored to please his palate and eye as the man who can afford to buy butter and who buys butter of the color and flavor that suits his taste. The butter manufacturer today artificially colors his butter to suit the markets in which he sells, the color ranging from a cream white to a deep orange. The manufacturer of a substitute for butter should have the same privilege, provided the butter substitutes are sold for exactly what they are.

In order to remedy the defects in the present oleomargarine laws, a bill was prepared by the Treasury Department and recommended by former Secretary of the Treasury Franklin MacVeagh, in the year 1909, which bill proposed to do away with the dual rate of tax, to limit the manufacturers' original packages to small packages, ranging from one-quarter pound to five pounds each, securely sealed by a Government strip stamp, with heavy penalties imposed upon everyone but the consumer who breaks such seal, and incorporated other strong administrative features to enable the Government to detect and prevent fraud. This bill was afterward converted into the so-called "Lever Bill," but was never reported to Congress by the Committee in charge.

The form of bill submitted herewith combines the strong administrative features and penalties provided in the original MacVeagh measure and the Lever bill. It proposes to place the supervision and enforcement of the law in the hands of the Department of Agriculture, and frees the product from taxation. I believe that such a measure, or the Lever Bill modified to carry a tax of only one-quarter cent per pound, whether colored or uncolored, would, if enacted into law, benefit all consumers, would be to the interest of manufacturers of butter substitutes, and would actually favor the small dairy farmer who can no longer manufacture butter at a profit to himself because of the competition of the big creameries, in that he will be able to sell larger quantities of the milk and cream which he produces to the manufacturers of butter substitutes at a greater profit to himself. All manufacturers of creamery buter will, by reason of the enforcement of such a law, be relieved as much as possible, of a most aggravating form of surreptitious competition which they now encounter under present laws because of the illicit sale of oleomargarine for butter by some unscrupulous butter dealers, peddlers, and others who style themselves dairy farmers.

Such a law should be supplemented by uniform legislation in all the States of the Union. A federal measure of this sort would take precedence over any and all contradictory state laws.

I believe that, in the interest of remedial legislation the whole subject is worthy of discussion at this time through the columns of *The American Food Journal.*

Respectfully yours,

A. D. CURRIER.

April 23, 1917.

The text of the proposed law is as follows:

IN THE HOUSE OF REPRESENTATIVES.

A BILL

To change the name of "oleomargarine" to "margarine"; to repeal all taxes on margarine; to protect the consumers, dealers and manufacturers of margarine against fraud; and to afford the Department of Agriculture efficient means for the detection of fraud.

Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled,

SECTION 1. That for the purpose of this Act, certain manufactured substances and certain mixtures and compounds, including such mixtures and compounds with butter, shall herein be known and designated as "Margarine," namely all substances heretofore known as oleomargarine, oleo, butterine, and all mixtures and compounds of oleomargarine, oleo, oleomargarine oil, butterine, lardine, suine, neutral, lard extracts and tallow extracts, tallow, animal fat, suet, lard, lard oil, vegetable oil, annatto or other harmless coloring matter, made and calculated to be sold as a substitute for butter.

SECTION 2. Every person who manufactures margarine for sale shall be deemed a manufacturer of margarine. Every person who sells or offers for sale margarine in "Manufacturers' shipping packages" as hereinafter defined, in quantities of ten pounds or more at one time, shall be deemed a wholesale dealer in margarine. Every person who sells margarine in "Manufacturers' original packages," as hereinafter defined, in quantities of less than ten pounds at one time shall be deemed a retail dealer in margarine.

SECTION 3. That every manufacturer of margarine intended to be sold or used in interstate or foreign commerce shall file with the Secretary of Agriculture such notices and inventories and shall keep such books and render such returns in relation to his business, shall put up such signs and affix such number to his factory, and conduct his business under such surveillance of officers and agents as the Secretary of Agriculture may, by regulation, require.

Such books shall be open to the inspection of any officer or agent of the Department of Agriculture. Whoever fails to keep such books or render such returns in relation to his business as may be required by the regulations of the Secretary of Agriculture, or makes a false entry in such books or returns, shall be fined not more than five hundred dollars, or be imprisoned not more than six months, or both.

SECTION 4. That all margarine sold or intended to be sold or used in interstate or foreign commerce shall be put up by manufacturers in their manufactories in separate prints or bricks of one-half, one, two, three and five pounds, and in no larger or smaller sub-divisions, in cartons, metal or fiber containers; and first there shall be indented conspicuously upon the substance the word "Margarine," in letters the size of which shall be prescribed by the Secretary of Agriculture. Such cartons, metal or fiber containers shall have printed or branded conspicuously upon them, the word "Margarine," in letters which shall be not less than one-half inch square, and such cartons, metal or fiber containers shall also bear the name of the manufacturer, and the number of manufactory and the state in which it is located; and such cartons, metal or fiber containers of margarine, shall be securely sealed with a paper or cloth strip of such form as may be prescribed by the Secretary of Agriculture; and there shall be printed upon such strip with which said containers of margarine are so sealed, the following: "Notice. The Manufacturer of the margarine herein contained has complied with all the requirements of law. Every person is cautioned not to use this package again, nor to remove the contents of this package without destroying this strip, under the penalty provided by law." Every manufacturer of margarine who neglects to securely seal said cartons, metal or fiber containers of margarine with said strip having printed thereon the notice as above provided, and every person who fraudulently removes such strip affixed to any such package, shall be fined fifty dollars for each package in respect to which such offense is committed.

Such cartons, metal or fiber containers in which such prints or bricks are enclosed, shall be known as "Manufacturers' Original Packages." Such "Manufacturers' Original Packages" shall then be packed by the manufacturers thereof, in wooden or other containers, each containing not less than ten pounds, which likewise shall be marked or branded in such manner as may be prescribed by the Secretary of Agriculture; and such packages shall be known as "Manufacturers' Shipping Packages."

The paper or cloth strip with which such "Manufacturers' Original Packages" shall be sealed, as hereinabove provided, shall be so affixed to such one-half, one, two, three and five-pound packages as to seal them securely, so that such "Manufacturers' Original Packages" may not be opened without breaking or destroying the said strip affixed thereto; and all sales made by manufacturers of margarine and by wholesale dealers in margarine, shall be of the "Manufacturers' shipping packages" of not less than ten pounds. Retail dealers in margarine shall sell only the one-half, one, two, three and five-pound "Manufacturers' Original Packages," to which the said strips are affixed as herein provided, and in quantities of less than ten pounds at one time. Every person who knowingly sells or offers for sale, or delivers or offers to deliver, any margarine in any other form than in the packages above described, or who packs in any package, any margarine in any manner contrary to law, or who falsely brands any package, shall be fined for each offense not more than one thousand dollars, or be imprisoned not more than one year, or both; provided, that nothing in this section contained shall apply to margarine manufactured and removed for export.

SECTION 5. That all margarine imported from foreign countries shall, in addition to any import duty imposed on the same, be subject to such rules and regulations as may be prescribed by the Secretary of Agriculture under this Act. Whoever sells or offers for sale any imported margarine or margarine purporting or claiming to be imported, not put up in packages in the manner herein prescribed and in accordance with the rules and regulations of the Department of Agriculture, shall be fined not more than two thousand dollars, or imprisoned not more than two years, or both.

SECTION 6. That all packages of margarine sold or intended to be sold in interstate or foreign commerce that shall be removed from the manufactory or offered for sale without the marks and strips as herein provided and as may be prescribed by the Secretary of Agriculture, shall be forfeited to the United States. Any person who shall fraudulently remove or deface such marks, strips or brands on any package containing margarine, or who reuses such strips, shall, for each such offense be fined not more than one thousand dollars, or be imprisoned not more than six months, or both.

Every person who knowingly purchases or receives for sale any margarine manufactured for sale or use in interstate or foreign commerce which does not bear the marks, strips and brands herein provided, shall be liable to a penalty of fifty dollars, for each offense; and every person who knowingly purchases or receives for sale any margarine from any manufacturer who has not complied with the provisions of this Act relating to manufacturers, shall be liable, for each offense, to a penalty of one hundred dollars, and to a forfeiture of all articles so purchased or received or of the full value thereof.

SECTION 7. Every person who shall export margarine shall brand upon each and every package containing margarine intended for export, the words "Margarine for Export," in plain roman letters, not less than one-half an inch square.

SECTION 8. If any manufacturer of margarine, any dealer therein, or any importer or exporter thereof shall knowingly or willfully omit, neglect, or refuse to do, or cause to be done any of the things required by law in the carrying on or conducting of his business, or shall do anything by this Act prohibited, if there be no specific penalty or punishment imposed by any other section of this Act for the neglecting, omitting or refusing to do the thing required, or for the doing or causing to be done the thing prohibited, he shall pay a penalty of one thousand dollars; and if the person so offending be the manufacturer thereof, or a wholesale dealer in margarine, all the margarine owned by him in which he has any interest as owner, shall be forfeited to the United States.

SECTION 9. The Secretary of Agriculture shall make all needful regulations for carrying into effect the provisions of this Act.

SECTION 10. That there is hereby permanently appropriated, out of any money in the Treasury not otherwise appropriated, the sum of * dollars for the expenses of the inspection and supervision of the manufacture and sale of margarine in interstate or foreign commerce, and for the expenses necessary to carry into effect the provisions of this Act and the enforcement thereof, including rent, employment of labor in Washington and elsewhere, in each year. And the Secretary of Agriculture shall, in his annual estimate made to Congress, submit a statement in detail, showing the number of persons employed in such inspection and supervision, and the salary or per diem paid to each, together with the contingent expenses of such inspectors and employes, where they have been and are employed.

SECTION 11. That the Act of August second, eighteen hundred and eighty-six (Twenty-fourth Statutes at Large, page two hundred and nine), entitled "An Act defining butter, also imposing a tax upon and regulating the manufacture, sale, importation, and exportation of oleomargarine," and the Act of October first, eighteen hundred and ninety (Twenty-sixth Statutes at Large, page six hundred and twenty-one), and the Act of May ninth, nineteen hundred and two (Thirty-second Statutes at Large, page one hundred and ninety-four), entitled "An Act to make oleomargarine and other imitation dairy products subject to the laws of any State or Territory or the District of Columbia into which they are transported, and to change the tax on oleomargarine, and to impose a tax, provide for the inspection, and regulate the manufacture and sale of certain dairy products, and to amend an Act entitled "An Act defining butter, also imposing a tax upon and regulating the manufacture, sale, importation, and exportation of oleomargarine," approved August second, eighteen hundred and eighty-six," be, and the same are hereby, repealed.

SECTION 12. That this Act shall take effect on the first day of the month of July following its enactment.

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*The amount hereby appropriated should be fixed after consultation with the Department of Agriculture. In 1912 Commissioner Cabell testified that in his judgment, $100,000 a year would be sufficient.

Fish Landed at New England Ports.

The fishing fleet landing fishery products at Boston and Gloucester, Mass., and Portland, Me., during the month of March, 1917, included 186 steam and sail vessels. As reported in *Commerce Reports* No. 89, these vessels landed at Boston, 214 trips aggregating 8,437,987 pounds of fish, valued at $395,106; at Gloucester, 265 trips aggregating 741,368 pounds, valued at $54,193; and at Portland, 408 trips amounting to 1,135,397 pounds, valued at $56,328. The total for the three ports during the month amounted to 887 trips, aggregating 10,314,752 pounds of fresh and salted fish, having a value to the fishermen of $505,627.

Program for Food Production and Conservation

At a recent conference of agricultural representatives of thirty-two states with the Secretary of Agriculture there was adopted the following program to increase production, promote food saving, provide the labor for agricultural industries and secure better distribution of food products: *An emergency appropriation of $25,000,000 to be made available immediately for the use of the Secretary of Agriculture to meet the extraordinary needs of agriculture; an urgent call to all farmers to increase production and to housewives to avoid all food waste; the mobilization of over 2,000,000 unemployed boys between the ages of fifteen and nineteen years for service on the farms and in the production of food supplies and munitions; the enlistment of men unfitted for military service as an officially-recognized force for the production of necessities; a complete survey of the food supply; national systematic publicity of food prices; effective control of agencies for the manufacture and handling of foods and price fixing, if necessary.*

These are among the leading recommendations of sixty-two officials representing State agricultural colleges and commissions of thirty-two States, from New York to the Rocky Mountains, who met at the request of the Secretary of Agriculture to confer with representatives of the U. S. Department of Agriculture in St. Louis, April 10 and 11. The conference, after dealing with the general problems of financing agriculture and organizing the Federal and State agencies for effective co-operation, made a special appeal to the patriotism of farmers and recommended a definite program particularly looking to the increase of cereal and leguminous food and meat and animal products. Home owners and their children were urged to produce as much food as possible in back yards and vacant lots and to can or preserve all surplus.

The conference, after thorough discussion, decided to deal with the whole subject of the food supply under four major divisions as follows:

1. **Production and Labor.**
2. **Distribution and Prices.**
3. **Economy and Utilization.**
4. **Effective Organization.**

There was appointed a committee of fifteen, composed of the following State commissioners of agriculture, representatives of State colleges and representatives of the U. S. Department of Agriculture:

Commissioners of Agriculture—H. K. Bryson, Tennessee; G. A. Stauffer, Ohio; Jewell Mayes, Missouri; Charles S. Wilson, New York; J. N. Hagan, North Dakota; J. A. Wade, Alabama.

Agricultural Colleges—W. O. Thompson, Ohio; H. J. Waters, Kansas; H. L. Russell, Wisconsin; Eugene Davenport, Illinois; Clarence Ousley, Texas; J. M. Hamilton, Montana.

U. S. Department of Agriculture—David F. Houston, Secretary of Agriculture; W. A. Taylor, Chief, Bureau of Plant Industry; Charles J. Brand, Chief, Office of Markets and Rural Organization. This committee appointed from its membership the following sub-committees to deal with each of the four problems:

PRODUCTION AND LABOR.

H. J. Waters, Eugene Davenport, J. A. Wade, Jewell Mayes, G. A. Stauffer, W. A. Taylor.

ECONOMY.

J. M. Hamilton, H. K. Bryson, W. H. Jordan.

DISTRIBUTION AND PRICES.

Clarence Ousley, J. N. Hagan, Kenyon L. Butterfield, Charles J. Brand.

ORGANIZATION.

W. O. Thompson, Charles S. Wilson, H. L. Russell, D. F. Houston

The committee of fifteen then reported its findings to the general conference, which decided to express its views and to urge the courses of action as summarized below:

THE FARMER'S RESPONSIBILITY.

Upon the farmer rests in large measure the final responsibility of winning the war in which we are now involved. The importance to the nation of an adequate food supply, especially for the present year, can not be over-emphasized. The world's food reserve is very low. Therefore, the man who tills the soil and supports the soldier in the field, and the family at home, is rendering as noble and patriotic a service as is the man who bears the brunt of battle. Within the next sixty days the final measure of crop acreage and food production for this year will have been established. We urge the importance of the immediate mobilization of all available service in performing the patriotic duty of providing and conserving food. Because of the world shortage of food, it is scarcely possible that the production of staple crops by the farmer of the United States can be too great this year. There is every reason to believe that a generous price will be paid for the harvest of their fields.

EMERGENCY APPROPRIATION OF $25,000,000.

To meet the extraordinary needs of agriculture in this emergency we recommend that an appropriation of $25,000,000, or so much thereof as may be needed, to be available immediately for the use of the Secretary of Agriculture in such manner as he may deem best. The situation which now confronts our country is a great emergency—the greatest perhaps in its history. It is strongly urged that Congress and State Legislatures, in passing laws or in making appropriations intended to carry out these or other plans for assuring an adequate food and clothing supply, should, so far as possible, be governed by the principle that when the emergency ceases much permanent reconstruction in agricultural policies and plans may be necessary. The recommendations in the main call for Federal action, but State governments can and should co-operate to the fullest degree in considering and executing plans of co-operation and of

DAVID FRANKLIN HOUSTON.

supplemental legislation and appropriation for the great common purpose herein enunciated.

NATIONAL AND STATE ORGANIZATIONS NEEDED.

The Council of National Defense is charged with the duty of mobilizing the resources of the nation, having as one of its members the Secretary of Agriculture. We recommend additional machinery as follows:

A relatively small central agricultural body, whose services and presence might be required in Washington constantly, to be composed of men who have wide knowledge of agricultural matters and executive experience. In selecting these men, attention should be paid to geographical distribution.

A large national advisory body composed of representatives of the leading agricultural agencies and associations concerned not only in production but in distributing and handling commodities.

A small central agricultural body in each State, representing various agricultural interests, including agricultural officials, representatives of agricultural colleges, bankers', business, farmers' and women's organizations, etc., concerned in the production, distribution, and utilization of food supplies and agricultural raw materials. This body should be designated by the Governor, and, if the State has a central council of safety or defense, should be co-ordinated with it.

Such county, urban, and other local bodies as the State authorities, including this State central agency, may see fit to suggest.

The National central body and the State central bodies will be expected to keep in intimate contact and to work in close co-operation.

INCREASING THE FOOD SUPPLY.

Increase the acreage in spring wheat in the Northern States. Increase the corn area east of the 100th meridian. In districts where wheat has been winter-killed, replant with oats, corn, or sorghum as climatic conditions may determine. Plant barley and oats, wherever they are proved and reliable crops, to the maximum that can be handled. Buckwheat acreage in the Northern and Eastern States, where the season is too short for the great staple crops, may well be increased. The area planted to navy beans in the North and West and to Mexican and Tepary beans in the Southwest should be enlarged. The planting of potatoes, especially for local use, should be stimulated in every reasonable way. Sweet potatoes in the South should be produced in larger quantity than usual for use in their fresh state, and for storing, canning or desiccating for winter use. Production of peanuts should be enlarged.

Care should be taken to avoid undue encroachment on areas used for pasturage and hay required for live-stock production. Authority should be granted to the Secretary of Agriculture to advance to farmers under proper safeguards seed required to insure the production of crops necessary for the welfare of the nation.

KEEPING UP THE MEAT SUPPLY.

An early increase in the animal products of the country should be made, as live-stock holdings already are too low and should not be diminished further. Increase must come through enlarging the supply of feed, by more efficient methods of feeding, and through more complete control of contagious diseases. These diseases take a toll of more than a quarter of a billion dollars annually, more than half of which is due to controllable diseases such as hog cholera, black leg and tick fever. The Federal Government, co-operating with the States, could profitably expand its intensive regulatory services so as to embrace every important live-stock district. Pork production could be increased substantially through the more extensive use of fall litters, better care and feeding. Milk production could be increased fully one-fourth by more liberal and intelligent feeding. The poultry products of the United States can and should be doubled within a year.

THE HARVEST EMERGENCY.

The husbanding of a matured crop promptly is often the most vital and crucial point in production and is the point of the heaviest labor demand on the farm. The Federal Department of Agriculture, co-operating with the State departments of agriculture and other agencies, should take steps to mobilize sufficient farm labor to meet all emergencies which may arise. One of the principal limiting elements of food production is the labor supply on the farm. Indiscriminate enlistment from the farms with no plan for labor replacement will reduce food production below its present low level. The plan for public defense should include as definite a provision for enlistment for food supply as for service at the front. More than two million boys between the ages of 15 and 19 years in the cities and towns not now engaged in productive work vital to the nation constitute the most important labor resource—hitherto unorganized and unutilized, but available for this emergency.

The plan for military enlistment should be broadened to include in the national service those who, by reason of their age or physical condition, are permanently or temporarily incapacitated for active military duty but who are able to render the Government equally indispensable service in the production of food, supplies and munitions. This enlistment should include three classes of men—men beyond military age, men of military age but not accepted for active military duty, and boys under age for enlistment. The Government should make plans at once for the mobilization of this important resource for the production of food and other necessities. This proposed enlistment in the national service should be regarded as part of the public patriotic service in the present war and be given proper official recognition.

SURVEY OF THE FOOD SUPPLY.

A thorough-going survey of the food, labor, and other resources of the country and of the needs of local communities is recommended. The conference advises that the Secretary of Agriculture, in co-operation with the Federal Trade Commission, be given power, as far as practicable, to secure full information regarding the food supply of the nation and all business enterprises related thereto. Authority should be conferred upon the Secretary of Agriculture to establish market grades and classes of farm products, including seeds, and standards for receptacles for such products. These measures are believed to be of special importance in connection with perishable crops, but apply with almost equal force to the staples.

The Secretary of Agriculture should be authorized by law to license warehouses, packing plants, mills, cold storages, produce exchanges, co-operative and other shipping associations, commission merchants, auctioneers, brokers, jobbers, wholesale distributors, and other individuals, partnerships, associations, and corporations engaged in the business of marketing and distributing farm and food products. When directed by the President the Secretary should have power, after advising with the Council of National Defense as to the necessity of such a step, to take over and operate such of these businesses as may be warranted, in a manner similar to receivership. Government agencies should do everything in their power to bring about an adequate supply of cars for moving food and other necessities. Communities, counties, and cities should be urged to take steps that will lead toward a larger degree of local and district self-support, especially in perishable products.

PRICE PUBLICITY.

To bring about a greater equality of distribution with reference to the consumptive demands of population centers, the U. S. Department of Agriculture and the several State departments should extend and make as effective as possible their facilities for disseminating market information. This extension should include the publishing as widely as possible of average prices of foods, feeds, and live-stock, particularly the prices paid by the War Department where its purchases are made in the open market. Effort should be made to expand local production to care for the needs of all training camps. Steps should be taken to facilitate the delivery of agricultural implements and machinery, particularly for seeding and harvesting, and, if necessary, to require that preference in filling orders be given to urgently needed equipment of this character. Steps should be taken at once to secure preferred movements of freight shipments of farm machinery, seeds, fertilizers and spraying materials.

PRICE CONTROL.

The very low food reserves of the world, due to last year's short crops, the increased demands due to the consumption and waste of war and the disappointing condition of the winter grain crop give ample assurance of profitable prices to producers this year. Therefore, the fixing of maximum or minimum prices need not be undertaken at this time, but the fact that such a course may become necessary in the future makes advisable the creation of agencies which will facilitate Government action when the necessity may arise. To this end, it would be well for the Congress of the United States to authorize the Council of National Defense, if deemed necessary, to purchase, store and subsequently distribute food products, or to fix prices in any national emergency caused by a temporary or local over-production, or by a sudden ending of the war, or by restraints of trade, manipulations or uneconomic speculation, in order that producers may not be required to suffer loss on account of the extraordinary efforts they are now asked to make, and in order that consumers may not be required to pay oppressive prices in case of disorganized or inadequate transportation. Information should be continuingly maintained by the Department of Agriculture that will afford the council intelligent data upon which to act wisely and fairly in any emergency.

INCREASED HOME ECONOMY AND PRODUCTION.

"We are the most wasteful people in the world in our ways of living. Our tastes and desires have been educated beyond our incomes" is the opening paragraph of the resolution recommending increased home economy. "Almost as great a saving could be made by the more economical manufacture, purchase and use of food as can be made by processes of production which are immediately feasible."

Other recommendations are: Our breadstuff supply may be increased by 1/12, or 18 million barrels of flour a year, by milling our wheat so as to make eighty-one per cent (81%) of the kernel into flour, instead of seventy-three per cent (73%) as at present. The flour still would have as high nutritive value as that which we now use. Important saving may be effected by making the diet as largely vegetarian as possible, without lowering food efficiency, by a partial substitution of such foods as beans, peas and milk and its products, including skim milk, for more expensive meats. A larger use should be made of corn and rice products as partial substitutes for wheat products. Home-grown and home-prepared grain products should be substituted for the more expensive refined commercial foods, known as breakfast foods. Adequate gardens should provide the home supply of vegetables. The home storage and preservation of foods such as eggs, fruits, vegetables and meats should be increased. The serious food wastes that occur in many households through lack of culinary knowledge should be minimized through instruction in better methods. It is highly important that all educational agencies available for this purpose engage in widespread propaganda and instruction concerning the economical use of human foods.

THE SCHOOL CHILDREN'S PART.

"We appeal to the youth of the nation to put forth every effort to produce foodstuffs in gardens and fields," the report continues. "There could be no better expression of true patriotic devotion to the country. It has been demonstrated through the boys' and girls' clubs that it is possible for the farm family to supply itself with much of the food it requires, thereby releasing the commercial product of the country for the needs of the people in the cities and in foreign lands.

THOSE ATTENDING THE CONFERENCE.

Representatives of U. S. Department of Agriculture who took part in the conference were David F. Houston, Secretary of Agriculture; Charles J. Brand, Chief of the Office of Markets and Rural Organization; Wm. A. Taylor, Chief, Bureau of Plant Industry.

Representatives of the agricultural colleges who took part in the conference were: From *Alabama*, J. F. Duggar, Director of Extension Service; from *Arkansas*, Martin Nelson, Dean College of Agriculture, W. C. Lassetter, Acting Director of Extension, J. G. Futrall, President, University of Arkansas; from *Colorado*, Alvin Kezer, Agronomist, Colorado Agricultural College; from *Delaware*, Harry Hayward, Dean, College of Agriculture; from *Georgia*, J. K. Giles, Assistant State Agent in Extension Work; from *Illinois*, Eugene Davenport, Dean, College of Agriculture, Cyril G. Hopkins, Chief in Agronomy, College of Agriculture, Herbert W. Mumford, College of Agriculture; from *Indiana*, W. E. Stone, President, Purdue University; from *Iowa*, R. A. Pearson, President, Iowa State College, Member, Executive Committee of Colleges and Stations, C. F. Curtiss, Iowa State College; from *Kansas*, H. J. Waters, President, Kansas State Agricultural College, Member, Executive Committee of Colleges and Stations, W. M. Jardine, Dean, College of Agriculture; from *Kentucky*, George Roberts, Acting Dean, College of Agriculture; from *Louisiana*, W. R. Dodson, Dean, College of Agriculture and Director of Station; from *Massachusetts*, Kenyon L. Butterfield, President, Association of Colleges and Stations; from *Michigan*, R. S. Shaw, Director, Agricultural Experiment Station; from *Minnesota*, A. D. Wilson, Director of Extension Work; from *Mississippi*, W. H. Smith, President, A. & M. College, R. S. Wilson, Acting Director of Extension Work; from *Missouri*, A. R. Hill, President, University of Missouri, F. B. Mumford, Dean and Director, College of Agriculture; from *Montana*, J. M. Hamilton, President, State College of Agriculture; from *Nebraska*, Samuel Avery, Chancellor, University of Nebraska, E. A. Burnett, Dean of Agriculture, C. W. Pugsley, Director of Extension work, F. L. Haller, Regent; from *New York*, A. R. Mann, Acting Dean, College of Agriculture, W. H. Jordan, Director of Experiment Station and Member of Executive Committee of Colleges and Stations; from *North Carolina*, W. C. Riddick, President, College of Agriculture and Engineering; from *North Dakota*, E. F. Ladd, President, Agricultural College, Thomas P. Cooper, Director, Agricultural Extension and Experiment Station; from *Ohio*, W. O. Thompson, President, Ohio State University and Chairman Executive Committee of Colleges and Stations; from *Oklahoma*, J. W. Cantwell, President, Oklahoma A. and M. College; from *Pennsylvania*, M. S. McDowell, Director of Extension Work; from *South Dakota*, E. C. Perisho, President, State College; from *Tennessee*, Charles A. Keffer, Director of Extension Work; from *Texas*, Clarence Ousley, Director of Extension Work; from *Vermont*, J. L. Hills, Dean, College of Agriculture, Sec'y of Executive Committee of Colleges and Stations; from *Virginia*, Jesse M. Jones, Director of Extension Work; from *West Virginia*, John Lee Coulter, Dean, College of Agriculture; from *Wisconsin*, H. L. Russell, Dean, College of Agriculture, Member Executive Committee of Colleges and Stations; and from *Wyoming*, H. G. Knight, Dean, College of Agriculture and Director of Experiment Station.

State Agricultural Commissioners who took part in the conference were: From *Alabama*, J. A. Wade, Commissioner of Agriculture; from *Arkansas*, John H. Page, Commissioner of Agriculture; from *Georgia*, L. B. Jackson, Representing Commissioner of Agriculture; from *Illinois*, B. M. Davison, Secretary, State Board of Agriculture; from *Indiana*, Wm. Jones, Financial Secretary; from *Iowa*, A. R. Corey, Commissioner of Agriculture; from *Kansas*, J. C. Mohler, Secretary, State Board of Agriculture; from *Kentucky*, Mat S. Cohen, Commissioner of Agriculture; from *Louisiana*, Harry D. Wilson, Commissioner of Agriculture; from *Missouri*, Jewell Mayes, Secretary, State Board of Agriculture; from *Montana*, Chas. D. Greenfield, Commissioner of Agriculture; from *Nebraska*, E. R. Danielson, Secretary, State Board of Agriculture; from *New York*, Charles S. Wilson, Commissioner of Agriculture; from *North Dakota*, J. N. Hagan, Commissioner of Agriculture; from *Ohio*, G. A. Stauffer, Secretary, State Board of Agriculture; from *Pennsylvania*, Charles E. Patton, Secretary, Board of Agriculture; from *Tennessee*, H. K. Bryson, Commissioner of Agriculture; from *Texas*, Fred W. Davis, Commissioner of Agriculture; from *West Virginia*, J. H. Stewart, Commissioner of Agriculture; and from *Wisconsin*, C. P. Norgord, Commissioner of Agriculture.

Central Atlantic Officials Organize

ON February 21st a conference was arranged for by Dr. J. S. Abbott at the Hotel Adelphi, Philadelphia, which has resulted in the formation of the Central Attlantic Federal, State and City Food and Drug Officials' Association. Dr. Abbott is the chemist in charge of State co-operative food and drugs control, Bureau of Chemistry, United States Department of Agriculture. The declared purpose of the conference was to simplify and unify the milk regulations of the several cities and States represented.

The following food and drug officials took part in the meeting: Clement S. Brinton, Chemist in Charge, U. S. Dept. of Agriculture, U. S. Appraiser's Stores, 134 S. Second St., Philadelphia; Frank H. Edsall, Superintendent of Health, Jersey City, N. J.; F. C. Blanck, Bureau of Chemistry, Washington, D. C.; W. C. Burnet, Eastern Inspection District, Bureau of Chemistry, Washington, D. C.; R. B. Fitzrandolph, Asst. Director, State Dept. of Health, Trenton, N. J.; Herbert B. Baldwin, Chemist. Department of Health, Newark, N. J.; Dr. J. H. Shaw, Veterinarian, N. J. State Dept. of Health, Trenton, N. J.; Dr. John H. Winstanley, representing C. J. Marshall, Pa.; Wm. G. Tice, Chief, Bureau of Foods and Drugs, N. J. State Dept. of Health, Trenton, N. J.; Dr. J. C. McNeil, Supt. Bureau of Food Inspection, Department of Public Health, Pittsburgh, Pa.; D. C. Bowen, Chief of the Bureau of Local Health Administration, Dept. of Health, State of New Jersey; Dr. Geo. W. McCoy, U. S. Public Health Service, Washington, D. C.; Dr. W. B. Billingsley, Veterinarian, State Dept. of Health, Baltimore, Md.; Dr. Reid R. Ashworth, Chief Food Inspector, Washington, D. C.; Marion B. Hopkins, Chemist, Baltimore, Md.; Dr. Wyatt W. Randall, Chief of Bureau of Chemistry, State Dept. of Health, 16 W. Saratoga street, Baltimore, Md.; Wm. Creighton Woodward, Health Officer, District of Columbia; Mr. E. F. Burke, Dept. of Agriculture, Albany, N. Y.; J. S. Abbott, Chemist in Charge, State Co-operative Food and Drug Control, Bureau of Chemistry, U. S. Dept. of Agriculture, Washington, D. C.; Lucius P. Brown, Director, Bureau of Food and Drugs, Department of Health, New York City; Ole Salthe, Assistant Director, Bureau of Food and Drugs, Department of Health, New York City.

The conference was opened by Dr. Abbott, and Mr. Brown, Director of the Bureau of Food and Drugs of the Department of Health, City of New York, was selected as temporary chairman. Mr. Salthe, assistant director of the Bureau of Food and Drugs, was selected as temporary secretary. Dr. Abbott opened the discussion and suggested a local organization of Federal, State and municipal food officials and pointed out that much good could be obtained by forming such an organization as the officials who had problems that were more or less alike could meet on short notice and have a full and open discussion, and in that way also, conflicting regulations could be adjusted.

Drs. Edsell, Caspari, Winstanley, Woodward, Fitzrandolph, Burke and Brown all expressed themselves as in favor of forming such an organization, and they pointed out some of the difficulties that they were at present encountering in enforcing various regulations, and gave as instances, enforcement of the cold storage law and investigation of wood alcohol, tomatoes, oysters, etc.

Following this discussion, a vote was taken on the organization of the Federal, State and municipal food officials of the Central Atlantic States, and the proposition was carried. The temporary chairman was authorized to appoint a committee to frame a constitution and by-laws to be submitted at the first regular meeting, and Drs. Burnet, Ashworth and Caspari were selected.

A motion was carried including in the organization the States of New York, New Jersey, Delaware, Pennsylvania, Maryland, Virginia, and the District of Columbia. It was further decided to authorize the constitutional committee to consider and report on the advisability of including in the organization officials from the States of Ohio and West Virginia.

The original discussion was then reopened by Mr. Brown, who told of the study made by him of the various milk regulations and the conflict he had found in the various regulations of the different States and municipalities. In this talk he also emphasized the fact that duplication of inspection occurred. Dr. Woodward suggested that the initial step to be taken should be the exchange of score cards between various municipalities or States who were inspecting the same territory. Dr. Edsall suggested that a uniform score card be established.

The temporary chairman appointed a committee consisting of Mr. Tice, Dr. McNeill and Mr. Taylor to consider the question and submit a report at the next meeting. The chairman also appointed a program committee consisting of Drs. Fitzrandolph, Foust, Burke, Edsall and Blanck.

The first regular meeting of the new association will be held at the Hotel Adelphia, Philadelphia, on May 2nd and 3rd. The program will be as follows:

Afternoon Session—May 2nd.

3 p. m.

Report of the Committee on Constitution and By-Laws. Nomination and election of officers.

Evening Session—May 2nd.

8 p. m.

Report of the Committee on Rules and Regulations for the Production of Clean and Safe Milk.

Discussion opened by Dr. Wm. C. Woodward, Health Officer of the District of Columbia; Mr. Lucius P. Brown, Director. Bureau of Food and Drugs, Department of Health, New York City, and Mr. Ernest Kelly, Bureau of Animal Industry, Department of Agriculture, Washington, D. C.

Morning Session—May 3rd.

9:30 a. m.

Symposium on the Chemical Composition of Oysters from Known Sources.

Report of analyses by R. E. Doolittle, Chief, Eastern District, Bureau of Chemistry, United States Department of Agriculture, Washington, D. C.; Somebody from United States Public Health Service, Washington, D. C.; Charles H. Lawall, Dairy and Food Bureau, Pennsylvania; H. V. Stewart, Dairy and Food Division, Virginia; Harold W. J. Keen, Bureau of Food and Drugs, Department of Health, City of New York, and Wm. G. Tice, State Department of Health of New Jersey.

Symposium on the Chemical Composition of Canned Tomatoes from Known Sources.

Report of analyses by R. E. Doolittle, Chief, Eastern District, Bureau of Chemistry, United States Department of Agriculture, Washington, D. C.; Dr. W. W. Randall, State Department of Health of Maryland; H. V. Stewart, Dairy and Food Division, Virginia, and Charles H. Lawall, Dairy and Food Bureau, Pennsylvania.

Either Dr. C. L. Alsberg, Chief of the Bureau of Chemistry, or Mr. W. G. Campbell, Assistant Chief of the Bureau, will be present if possible and take part in the discussions and address the association on some subject of his own choice.

Extract Makers Meet.

The Executive Committee of the Flavoring Extract Manufacturers' Association met at the Hotel Astor, New York City, on the 27th and 28th of April. At that time was discussed the proposed amalgamation of the Flavoring Extract Manufacturers' Association with the American Spice Trade Association, the date of the next convention, and the very important matter of war taxation.

Cuban Sugar Crop Short.

A cablegram from the American Consul General at Havana states that according to present indications the sugar crop will be about 2,750,000 tons. This is 550,000 tons under early estimates. Most of this loss is attributed to the revolution, with its attendant fires, interrupted railway traffic and labor disturbances.

First Meeting of South Central Officials

HARRY L. ESKEW,
Food Commissioner of Tennessee.

THROUGH the efforts of Harry L. Eskew, Food and Drug Commissioner of Tennessee, the Association of Food and Drug Officials of the South Central States was successfully launched at Memphis on April 16th. A meeting of the State and municipal officials was called at the Hotel Chisca, and after the preliminaries of organization had been carried through, the first general sessions were held. The States represented in the new association are Alabama, Mississippi, Arkansas, Oklahoma, Kentucky, Louisiana, Texas and Tennessee.

The purpose of the association is to make possible closer co-operation than has existed hitherto in the enforcement of food and drug laws. More friendly relations between the officials of different jurisdictions, and the elimination of part of the overlapping of inspections are expected to result.

The meeting was held at a most opportune time to discuss the vital problems of food conservation. Plans by which the several state departments can co-operate with the Federal Food and Drug Department to the end that definite steps may be taken to ascertain visible food supplies and to educate the public against waste, especially as to the selection of foods of the most nutritive value, were discussed.

Organization Meeting.

The organization meeting came to order at eleven o'clock Monday, April 16th. At Mr. Eskew's request, Mr. R. G. Gould, publisher of THE AMERICAN FOOD JOURNAL, acted as temporary secretary. J. W. Sample, State Chemist of Tennessee, was elected temporary chairman.

At the request of Mr. Francis of Oklahoma, Chemist of Feed Control, Oklahoma, Mr. Eskew explained the purpose of starting the organization; that the objects in view were primarily those of co-operation and co-ordination of effort in order to effect economy and better service in the states represented. After a discussion of the Organization Committee, Mr. Eskew again spoke on the need for better mutual acquaintance. W. E. Dodson, Director Louisiana Experiment Station, suggested the uniform testing of milch cows for tuberculosis as one of the food control problems that should be taken up; a matter which he considered essential if the southern states were to build up an important dairy industry. Dr. John Frick, Inspector in the Tennessee Food & Dairy Department, spoke on the need for standardization in the control of dairy and soda water products. L. M. Tolman, chief of the Federal Central Division, made a special point of the desirability of uniform rules of inspection. He said that the laws were satisfactory enough, but that there were differences in the regulations. He also adverted to the loss of energy in the overlapping of inspection districts, including New England. C. L. Clay, State Analyst of Louisiana, discussed the milk supply of New Orleans, part of which comes from Louisiana and part from Mississippi. J. W. Duke, Commissioner of Foods and Drugs, Oklahoma, spoke of the need for better milk control, and called for efforts towards conservation of the food supply. He quoted a wholesale grocer of Oklahoma, who had said that there was only thirty days' food supply in that state.

The chairman then announced the appointment of the Organization Committee, as follows: H. L. Eskew, chairman, Blaine Danley, John H. Page, Charles M. Campbell, J. O. LaBach, W. E. Dodson, Cassius L. Clay, W. F. Hand, S. M. Thomas, Edward DeBarr, C. K. Francis, J. M. Moore, and L. M. Tolman. The meeting adjourned and the committee immediately went into conference.

Election of Officers.

The Association reconvened at 2 p. m. The suggestions of the Committee on Organization were adopted without alteration. Harry L. Eskew was elected President, John H. Page of Little Rock, Vice-president, Cassius L. Clay of Louisiana, Secretary-Treasurer, and L. M. Tolman, U. S. Department of Agriculture, W. F. Hand, Mississippi, and C. K. Francis, Arkansas, to serve with the officers on the Executive Committee.

The President immediately appointed the following committees: Committee on Constitution and By-Laws, John W. Duke of Oklahoma, I. C. Casey of Arkansas and J. O. LaBach of Kentucky; Committee on Resolutions, Edwin DeBarr of Oklahoma, J. M. Moore of Alabama, and S. M. Thomas of Mississippi.

Dr. John W. Duke spoke on the necessity of men with technical knowledge aiding the government to avoid serious trouble in the food situation, and expressed the opinion that the Association would be of constructive service to the government and the people. He outlined the work of his own office, and emphasized the importance of using the newspapers to inform the citizens of the state.

Dr. J. S. Abbott, who had just taken a leading part in the organization of the Central Atlantic Federal, State, and City Food and Drug Officials Association, advised the Association as to the best methods of proceeding with its work, and made some suggestions as to the sort of work that the Association could profitably undertake. He said that the Department of Agriculture had a great deal of information on hand at Washington, and that it was his duty and pleasure to supply this information to all food control officials who asked for it. On the other hand, he said that the state officials had much data that might be called for in connection with the present food situation. He criticised the official who not only failed to co-operate with neighboring officials, but in fact acted in antagonism to them.

Edwin DeBarr, Professor of Chemistry, University of Oklahoma, spoke of ways to increase the food supply. He suggested the possibility of compelling the millers to market 85 per cent of the grain as flour instead of the seventy odd per cent now customary. He also spoke of oleomargarine as a substitute for butter. He advocated the use of home cooked cereals instead of so-called "breakfast foods," and concluded with expressing the opinion that the Association would soon be called upon to assist the Federal government in food conservation measures made necessary by the war.

The meeting then adjourned to visit the plant of D. Canale & Co., wholesale fruit and wine dealers.

Appointment of Committees.

The third session came together at 10 o'clock Tuesday morning. The Executive Committee had met previously and made a report of the program for the day. They also announced that they had decided to give the secretary a nominal salary of $75 a year to reimburse him for the expenses of the office. The next meeting is to take place at Little Rock on April 15, 1918. Dr. John R. Duke, Chairman of the Committee on Constitution and By-Laws, submitted the Constitution.

The President then appointed the following committees:

SANITATION—C. W. Garrison, Chairman, F. J. Hogue, C. T. Smith, R. E. Thomas, and Edward E. Grant.

FOODS AND DRUGS — J. O. LaBach, Chairman, John W. Duke, D. L. Weatherhead, Blaine Danley and F. A. Mantel.

FEED AND FERTILIZER—Charles K. Francis, Chairman, W. H. Hall, B. B. Ross, George L. Sands and Roy Moses.

DAIRY AND FOOD PRODUCTS—Stanton H. Barrett, Chairman, W. F. Hand, J. M. Moore, Melton Vaughn, and I. E. Douglass.

CONSERVATION OF FOOD PRODUCTS—Edwin DeBarr, Chairman, J. Roy Keeney, W. R. Dodson, R. H. Hoffman, and J. M. Moore.

CONSERVATION OF FEEDS—John H. Page, Chairman, J. W. Sample, Frank W. Liepsner, Sam Byall, and T. Stigler.

MEAT INSPECTION — F. W. Morgan, Chairman, Melton Vaughn, Charles M. Campbell, F. H. Ferrell, and Richard W. Tuck.

L. M. Tolman, Chief Inspector Central Inspection District, Bureau of Chemistry, of Chicago, gave a survey of food industries. Dr. J. S. Abbott, in charge of States Co-Operative Foods and Drugs Control, Department of Agriculture, spoke on the topic "The Council of National Defense." Dr. J. W. Duke, state health officer of Oklahoma, addressed the Association on "State Organization."

Final Session.

The fourth and final session began at 1:30 p. m. A member from each committee was asked for a five minute talk.

C. L. Clay of Louisiana talked on the Conservation of Foods. He called his subject "Food Preparedness." He advocated the use of a variety of products rather than the usual limited number, and emphasized the need for increased production. He said that no source of help towards greater production should be ignored; that present conditions justified the raising of crops by school children even if they were absent from school in doing it; that little girls could raise chickens, and that the back yard garden would help. Pigs and calves should not be killed, but allowed to grow to maturity, as it is a waste to kill a small animal. He advocated the use of margarine while butter is expensive.

F. J. Hogue, Chief Sanitary Inspector, Chattanooga, spoke for the Committee on Sanitary Inspection. He took the view that insanitary conditions are largely to be blamed on the landlord, because the tenant believes that if he asks for an improvement of conditions it will be used as a pretext to increase his rent. He praised the federal workers and the help they are giving the cities. Dr. F. A. Mantel, Chief Chemist of Memphis, represented the Food and Drug Committee, confining his remarks largely to dairies. Charles K. Francis, of the Feed and Fertilizer Committee, discussed the elements that tend to make an inspector's work successful. He said that an inspector should be free from politics; that the qualification for his work should come from other sources. This does not necessarily mean a college education, but rather a technical education. The inspector should not devote all his attention to tearing down, but on the contrary should take samples of good articles, and devote more of his attention to constructive work.

The discussions following the five minute talks were full of interesting remarks. B. B. Ross of Montgomery suggested that legumes be substituted for grain, and offered the delegates some potato biscuits to prove that a mighty good food could be made from potatoes. He advised the increased use of vegetable oils as foods. Cassius L. Clay said that rice flour is being mixed with wheat flour in bread making, with success. L. M. Tolman remarked that the farmer is wasting large quantities of eggs through improper packing, resulting in excessive breakage, and that the country stores waste a great deal of butter. C. K. Francis said that alfalfa flour can be used in bread if the unpleasant taste is extracted with alcohol, and that Boston brown bread can be made from cotton seed meal, with a proportion of 35 per cent of the latter.

The report of the Committee on Resolutions was then submitted by Chairman J. M. Moore. A vote of thanks was given to Mr. Harry L. Eskew for his splendid work in assembling the food control officials at Memphis, to Drs. J. S. Abbot and L. M. Tolman of the Federal service for their cooperation, and to Mr. R. G. Gould of THE AMERICAN FOOD JOURNAL for his service as acting secretary of the conference, and for his assistance through the columns of the Journal.

List of Members.

The members of the Association of Food Feed and Drug Officials of the South Central States are:

ALABAMA.

J. M. Moore, Food, Drug and Feed Clerk, Dept. of Agriculture, Montgomery; B. B. Ross, Chemist, Montgomery.

ARKANSAS.

Dr. C. W. Garrison, State Health Officer, Little Rock; Geo. R. Ely, Chief Clerk, Inspection Dept., Little Rock; I. C. Casey, Feed and Fertilizer Inspector, Bentonville; Jno. H. Page, Com. of Agriculture, Little Rock; Roy Moses, Feed Inspector, Hampton; Geo. L. Sands, Feed and Fertilizer Inspector, Charleston; C. D. Page, Feed and Fertilizer Inspector, Little Rock; Dr. Melton Vaughan, City Health Commissioner, Little Rock; Charles M. Campbell, City Chief Food and Meat Inspector, Little Rock; F. E. Baker, City Health Officer, Stamps; Dr. O. Howton, Osceola; A. A. Gordon, Prescott; H. E. Thomas, Sr., City and County of Clarendon County and City Health Officer, Clarendon.

KENTUCKY.

J. O. Labache, Chief Chemist and Head Food and Drug Dept., Ky. Experiment Station, Lexington.

LOUISIANA.

W. M. Hall, Chemist, Feed and Fertilizer Lab., State Experiment Station, Baton Rouge; Cassius L. Clay, State Analyst, La. State Board of Health, New Orleans; W. R. Dodson, Director Experiment Station, Dean College Agriculture, Baton Rouge; Sam Byall, Chemist, Experiment Station, Feed and Fertilizer Laboratory, Baton Rouge; J. Roy Keeny, Chemist, La. State Board of Health, New Orleans.

MISSISSIPPI.

T. Stigler, Traveling Inspector, Feedstuff, Food and Fertilizers, Yazoo City; S. M. Thomas, Chief Inspector, Dept. of Agr., Jackson; W. F. Hand, State Chemist, in charge of Foods and the Analysis of Feeding Stuffs, Agriculture College.

OKLAHOMA.

Edwin Debarr, Prof. Chemistry Univ. of Okla., Norman; Chas. K. Francis, Chemist, Okla. Feed Control, Stillwater; John W. Duke, Com. of Health, Food and Drugs, Guthrie.

TEXAS.

R. H. Hoffman, Jr., Dairy and Food Commissioner, Austin; Rector P. Roberts, City Chemist and Food Inspector, Amarillo.

TENNESSEE.

Harry L. Eskew, Commissioner of Food and Drugs, Nashville; D. L. Weatherhead, Chief Chemist, Dept. Food and Drugs, Nashville; M. E. Hinds, Ass't Chemist, Dept. Food and Drugs, Nashville; Glenn C. Medaris, Chief Inspector, Dept. Food and Drugs, Nashville; D. J. Frazier, Inspector, Dept. Food and Drugs, Nashville; Dr. John Frick, Inspector, Dept. Food and Drugs, Memphis; Dr. T. B. Hughes, Inspector, Dept. Food and Drugs, Afton; H. M. Robertson, Inspector, Dept. Food and Drugs, Jackson; Chas. D. Hinds, Inspector, Dept. Food and Drugs, Nashville; J. W. Sample, State Chemist, Dept. Food and Drugs, Nashville; Blaine Danley, City Food Inspector, Nashville; Stanton H. Barrett, City Bacteriologist, Chattanooga; F. J. Hogue, Chief Sanitary Inspector (City), Chattanooga; Dr. F. W. Morgan, City Meat and Dairy Inspector, Chattanooga; P. H. Farrell, City Food Inspector, Memphis; L. E. Douglass, City Dairy Inspector, Memphis; J. Graves High, City Chief Milk Inspector, Memphis; Dr. Vernon A. Holby, Dept. Veterinerian, City Board of Health, Memphis; F. A. Mantel, City Chemist and Bacteriologist and Director of Chemical and Bacteriological Divisons, Memphis; G. B. Clark, Pure Food Inspector, City, Memphis.

UNITED STATES OFFICIALS.

Dr. Carl H. Alsberg, Chief, Bureau of Chemistry, Washington, D. C.; J. S. Abbott, Chemist, in charge Co-operative State Food and Drug Control, Washington, D. C.; Leo B. Forst, Chemist, in charge U. S. Food and Drug Laboratory, Cincinnati, Ohio; C. T. Smith, U. S. Food and Drug Inspector, Nashville, Tenn.; Frank H. Liepsner, Chemist, in charge U. S. Food and Drug Laboratory, New Orleans, La.; Fred L. Elliot, U. S. Food and Drug Inspector, New Orleans, La.; L. M. Tolman, Chief Central Division, U. S. Dept. of Agriculture, 1625 Transportation Bldg., Chicago, Ill.; James R. Garner, U. S. Food and Drug Inspector, Chicago, Ill.

The Bacteriology of Foods*

By Edwin O. Jordan, Ph. D.,
Professor of Bacteriology and Chairman of the Department of Hygiene and Bacteriology at the University of Chicago.

WHILE the bacterial examination of water in this country has led for some years past to fairly uniform results and has given information of the highest value for estimating the sanitary quality of a water, the bacterial examination of foods and its interpretation have been followed in many cases by a conflict of competent opinion and by a confusion of official and semiofficial rulings that have caused some bewilderment. A brief survey of the situation may be useful in drawing attention to certain points at issue.

It will be recognized that the value of bacterial food examination has definite limits. Actual discovery of pathogenic bacteria in food is a rare occurrence, and in particular cases may have little or no practical significance. Few workers would think of advocating a routine bacterial examination for the purpose of ascertaining whether or not specific articles of food can safely be eaten. Milk, the food most frequently subjected to bacterial examination, is never, so far as I know, examined with the view of determining the presence or absence of disease germs before it is consumed. To most bacteriologists there is no need to dwell on the futility of such an attempt.

It is true that in certain instances in which food poisoning due to bacteria or their products has occurred, pathogenic bacteria have been found in the remnants of the food after the event; but at most such findings afford some degree of corroboration, and oftentimes do not greatly strengthen the evidence connecting the outbreak of poisoning with a particular food. Infections due to milk are traced to their origin almost altogether through use of epidemiologic data, and as, for example, in most milk-borne typhoid outbreaks, the finding of a specific germ in the food itself, even if possible, would add little, if at all, to the weight of the evidence. It is not likely that the occasional cases of meat poisoning due to *B. enteritidis* and its allies could be materially diminished by any practicable system of bacterial meat examination.

Direct preliminary examinations of food being, therefore, of little or no value, there remains the method of attempting to estimate the possibilities—not actualities—of danger on the basis of bacterial findings. This method has been applied especially in the case of milk, oysters and a few other foods, and its use has been apt to lead to the adoption of standards of bacterial purity which serve to condemn or approve. It is precisely this subject of standards that has given rise to sharp controversy and has been surrounded with much misunderstanding.

Although the fixing and interpretation of standards has been much discussed in connection with water analysis, there is still some difference of opinion, tacit or expressed, as to what shall constitute a standard and what standards are for, anyway. The significance of a standard weight or standard measure can be generally appreciated even by those without technical training, but not so that of a standard of interpretation. The earlier chemical understanding of a "standard of purity" is still current, and it is a common conception that bacteriologists test food or drink to determine the presence therein of definite harmful bodies as the chemist tests for arsenic or lead. This is doubtless partly due to the feeling that all bacteria are harmful and that the fewer bacteria in milk or water the safer or more wholesome are these substances. This belief also colors the acceptation by laymen of bacteriologic opinion and their interpretation of bacteriologic data, as when Albert Shaw[1] construes the bacterial limit proposed for filtered water by the German health authorities as "a warning to the municipal governments of the country not to supply their citizens with a drinking water containing more than 100 cholera germs to the cubic centimeter," and adds, "It was considered that water infected to no greater extent could be used without serious danger."

The arbitrary adoption of a standard yard, pound or bushel is largely for the purpose of protecting the community against fraud, and this is true to only a slightly less degree of such measures as the fixing of a standard for the butter fat and total solids in milk. Nearly all chemical food standards fall in this category. It is evident, however, that bacterial standards for water, milk and foods in general are of a completely different character. Such standards merely express the expert opinion of one or, more commonly, of a group of persons that indications of sanitary unwholesomeness are afforded by the presence of a certain number or kind of bacteria. The history of science is full of illustrations of the danger of applying too rigorously or too mechanically any such standards of interpretation. One of the most familiar of these is the famous case of the chemical standards for drinking water. The value of the chemical examination of a water as a guide to its sanitary quality is now admitted to be very slight; some sanitarians would deny it altogether. And yet for years an enormous amount of energy was expended on making chemical analyses of water and ingeniously interpreting the results, usually on the basis of shrewd observation of the water sources. There is no doubt that the strict application of such chemical standards led frequently to the condemnation of perfectly wholesome water and sometimes to the sanction of potentially dangerous supplies.

While these facts respecting the tentative and fallible character of standards of interpretation are generally familiar to all scientific workers, it is well known that an open avowal of this situation is not always satisfactory to public officials and others who have decisions to make. Judge and jury would prefer the assurance that the thing is wholesome or unwholesome rather than the opinion of the witness that it may be so. It is all the more desirable to make clear to the public the fact that all bacterial standards of interpretation are but the expression of a more or less general consensus of opinion and are not claimed by any competent worker to be final or absolute. It is universally found that all standards of interpretation as soon as they are adopted must face so-called exceptions in which experience is at variance with the rigid application of the standard and overweighs the latter. Take, for instance, the standard prepared by the commission appointed by the Treasury Department to recommend standards of purity for drinking water supplied to the public by common carriers in interstate commerce.[2] The numerical limit proposed (100 colonies per cubic centimeter developing in twenty-four hours at 37 C.) is, as such standards generally are, the result of a compromise; it should have been somewhat higher in the opinion of some members of the commission, lower in that of others; others still would have omitted a colony count standard altogether. In point of fact, however useful the numerical limit may be in affording leverage for an expert opinion, it can hardly be maintained to be valid as an absolute criterion. In several instances I have found that deep well waters stored at a low temperature give a high 37 degree colony count in a few days. One such water giving no gas in 100 c.c., developed only twenty-eight colonies per cubic centimeter at 37 C.; but when stored for five days in a clean glass vessel at 10 C., developed 12,300 colonies. It is difficult to believe that any real change in the wholesomeness of the water occurs in such cases.

When the exhaustively studied and relatively simple water standards are subject to such exceptions and reservations, it is certainly not to be expected that bacterial standards for food will be any more satisfactory. The curious state of affairs with reference to bacterial criteria for the purity of milk exemplifies the uncertainty that actually exists. An "excessive number" of bacteria in milk seems to signify to some workers a number of over 200,000 per cubic centimeter, to others, over 1,500,000, and to some perhaps any counts that run above 10,000. The accuracy of the methods of milk examination current in recent years does not strengthen the case for arbitrary judgment. Many attempts have been made to standardize the methods of bacterial milk examination, and yet in the co-operative investigation conducted by four large New York laboratories and reported by Professor Conn, it was found that the final report on one and the same sample of milk—to select one case—might vary as much as from 30,000 by one laboratory to 2,410,000 by another.[3]

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*Chairman's address, read before the Section on Sanitary Bacteriology of the Society of American Bacteriologists, Dec. 29, 1916; reprinted from The Journal of the American Medical Association; Vol. LXVIII, No. 15 (April 14, 1917).

[1] Shaw, Albert: Municipal Government in Continental Europe, p. 398.

[2] Reprint 232, Public Health Reports, Nov. 6, 1914.

Apart from such difficulties, which are due to divergence in laboratory practice and can be in part although probably not altogether overcome, there is the question that already has given rise to much discussion, namely, the interpretation to be placed on consistently high bacterial counts in milk, numbers, let us say, ranging by the ordinary plate method quite uniformly above 200,000. It seems now to be established that the number of bacteria in market milk depends chiefly (*a*) on the initial contamination from the cow and from unsterile utensils, and (*b*) on the bacterial growth occurring between the collection and delivery of the milk. These two sets of factors are often summed up by saying that large bacterial numbers indicate that the milk is either dirty or stale or both. The use of words with offensive connotations is probably not without some justification, but should not be allowed to affect too much the judgment which experienced workers accord to the facts.

As regards numbers due to initial seeding, it is plain that the general cleanliness of the cow may conceivably be a matter for sanitary as well as esthetic consideration. There is less likelihood that dangerous bacteria wll get into the milk from a clean animal than from one slovenly kept. Just how important a safeguard against infection this sort of cleanliness is cannot be even approximately estimated. It is unquestionably far less valuable than attention paid to the animal's health. As has been demonstrated many times, a clean but diseased cow is more dangerous than an ill kept healthy one. It must not be forgotten, however, that clean and orderly methods react favorably on the morale of the industry, and their practice unquestionably stimulates interest in the far more significant matter of the health of the animals and of the employees.

The other main source in the initial seeding, the bacteria derived from apparatus and utensils, is of less sanitary importance. Pease[4] has shown how a large amount of bacterial multiplication may occur in milk cans even after "reasonably efficient, obvious and bacterial cleaning." In view of what is known of the conditions necessary for the multiplication of pathogenic bacteria, it is difficult to believe that these cans are to be properly considered as "breeding places of disease germs." We must admit that bacteria from utensils that have been thoroughly cleaned but not sterilized are not likely to belong to dangerous varieties, although their presence in large numbers may impair the keeping qualities of the milk, and so be of commercial importance. In point of fact, the treatment that milk and other foods get in the ordinary well conducted household is likely to add many bacteria of the same general character as those under discussion. To call milk "dirty" if the number of bacteria exceeds 10,000 or 200,000, or what not, is to substitute rhetoric for scientific precision.

The second factor in producing high bacterial counts in milk is the time for which, and the temperature at which, the milk is held. There is no need to rehearse the numerous experiments that have been made showing the rapid rate of bacterial propagation at high temperature and the slackening produced in this rate by chilling. Milk at the start relatively poor in bacteria may, if not cooled, develop as many bacteria in a few hours as another lot kept at low temperature will in several days. Regardless of the time elapsing since collection, milk containing many bacteria is sometimes said to be stale, or if few, to be fresh.

The real question here of course concerns the effect of bacterial multiplication in milk and its sanitary bearing. If certain kinds of pathogenic bacteria enter milk at the time of, or soon after, collection, there is evidence that they multiply and so increase the chances of serious infection. Possibly this danger is somewhat lessened if they do not enter until after the multiplication of the ordinary milk bacteria has passed into the hundred thousands; but we possess little certain information on this point. Since in the great majority of cases pathogenic bacteria are not present or cannot be demonstrated, the problem more commonly discussed is whether the products of ordinary bacterial multiplication are in themselves harmful. In some instances the use of old milk has been thought to be connected with the production of acidosis in children who were not well nourished or who had suffered previously from gastro-intestinal disturbance.[5] It cannot be assumed offhand that all bacterial products are injurious; some may increase the palatability and possibly the digestibility of food substances. Milk intentionally seeded with *B. bulgaricus* has been used acceptably and in the experience of some physicians beneficially by invalids and persons in delicate health. It is yet uncertain whether the products of *B. coli* or other organisms present in the healthy mammalian alimentary tract are not highly beneficial if not essential to normal digestion. So far as the bacterial products in milk are concerned, we cannot be positive that a given sample of milk containing 200,000 or 2,000,000 bacteria as determined by the ordinary colony count and about which nothing else is known is any more or any less likely to produce injury than one containing only 10,000.

With respect to the living micro-organisms themselves the situation is much the same. It might be argued that if 200,000 bacteria per cubic centimeter are present, there is a greater likelihood that some of them are dangerous than if there are only 10,000: but that this is not conclusive is shown by the fact that the multiplication of saprophytes is held by some to be an obstacle to the growth or the continued existence of pathogens. Large numbers of milk bacteria, irrespective of kind, in themselves and without reference to their sanitary implications, have never been shown to be definitely injurious.

In brief, bacteria in market milk may owe their origin either to a diseased or healthy cow, a diseased or healthy human being, unsterile apparatus or utensils, or to multiplication—which may have been either rapid or slow—of an initially large or initially small number. It is obvious that the sanitary importance of these several sources is very different and that the ordinary colony count affords no means of distinguishing between them.

In consequence of the uncertainty often attaching to the interpretation of the colony count, numerous attempts have been made to find specific bacteria whose presence in milk would determine more definitely whether the milk was "bad" or "good." As is well known to workers in dairy bacteriology, these attempts have not been successful, and no organism has been found the relative abundance of which in milk is considered to throw light on the character and sanitary history of the milk in the way in which *B. coli* has proved useful in water examinations. The search for such organisms, however, has not been altogether abandoned.[6]

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[3] Conn, H. W.: Reprint 295, Public Health Reports, Aug. 13, 1915.

[4] Pease: Am. Jour. Pub. Health, 1916, 6, 563.

[5] Chapin, H. D., and Pease, M. C.: Acidosis of Gastro-Intestinal Origin, The Journal A. M. A., Nov. 4, 1916, p. 1351.

[6] Attempts have been made to establish standards for the numerical abundance of B. coli in foodstuffs similar to the standards proposed for drinking water. These have not met with general acceptance for the reason that the significant conditions are quite different, one important distinction being that multiplication of the initial seeding is usual in foodstuffs, and rare or altogether absent in most waters. No evidence seems to have been brought forward that the multiplication of B. coli in food is any more likely to be accompanied by injurious consequences than, say, the multiplication of B. subtilis. In sausages and in presumably wholesome eggs, B. coli has been found in numbers far exceeding the admissible limit for drinking water. In the one case an abundance of this organism connotates a strong possibility of the presence of disease germs; in the other case, such a possibility is highly remote. Esthetic sensibilities are sometimes appealed to, and B. coli to the uttermost generation is held up to shame as being "always of fecal origin." Whether such a way of regarding the facts is justified or not, the following out of this reasoning chemically as well as bacteriologically would involve certain difficulties. The phobia

Evidently the most that can be claimed for the bacterial examination of milk is that it offers indications more or less precise of possibilities of danger. It cannot often enable us to declare positively that a particular lot of milk—I am speaking here of raw milk—is safe to use. A milk with a relatively low bacterial content has been known in more than one instance to give rise to epidemic infection, as in the extensive Boston outbreak of septic sore throat in 1911, when the responsible milk gave counts below 10,000 in fully half the samples examined throughout the months when the epidemic occurred.[7]

In general, the interpretation of results would be facilitated by a closer co-ordination between the laboratory work and the dairy inspection. High numbers—again let us say numbers above 200,000—may perhaps arouse suspicion as to the general care taken in collecting and handling the milk; but the source of the suspected trouble and the degree of danger to the public health can be arrived at only by the aid of dairy inspection. On the other hand, inspection may uncover sources of danger of which the bacterial examination gives no hint. More important than either dairy inspection or bacterial examination as a means of preventing the dissemination of infection by milk is the control of the modes of procedure in the milk business. Particularly important as concerns the use of raw milk is the strictness of supervision exercised over the health of all employees. Prevention of the infection of milk from human sources should be always a primary aim. Yet such precautions are peculiarly difficult to carry out in practice. In how many certified dairies are all employees examined for the possible presence of typhoid carriers? And what safeguard have we that a healthy milker may not, one time or another, pick up a streptococcus or diphtheria bacillus from some unsuspected source and become a carrier over night? Such familiar apprehensions point to the importance of the procedure which thus far has proved more important in checking the spread of milk-borne disease than any other measure—the practice of pasteurization. Needing, as it does, to be controlled bacterially and otherwise at every point, it nevertheless constitutes at present our chief reliance in preventing the dissemination of infection by milk.

These considerations throw perhaps some light on the real value of bacterial examinations of milk. Such examinations must be regarded as primarily useful as guides to proper procedure in handling and distributing and not as furnishing absolute criteria of wholesomeness. Even if we are safe in condemning milks containing consistently over 200,000 or 2,000,000 bacteria, we cannot endorse all milk with less than 10,000 as surely free from all possibility of conveying infection. In point of fact, our interpretation of the significance of numbers varies with our knowledge of the conditions. That different constructions must be placed on the numbers of bacteria in raw and in pasteurized milk is universally recognized. The grading of milk in small communities is on a different footing from the grading in large cities. Other circumstances also are taken into account. The New York City board of health allows its Grade B milk to contain 1,500,000 before pasteurization in the city, but only 300,000 before pasteurization in the country. The excellent use that the New York board of health makes of bacterial counts in controlling the grading of milk is typical of the trend of opinion in this matter.[8] The numbers of bacteria in milk have little meaning unless the sanitary history of the milk is known: when this is the case, they often become useful in controlling procedures and detecting possible sources of danger; they can never be used as absolute and rigid standards for condemnation or approval; they are guides to investigation; they are not, taken alone, a basis for final judgment.

The situation with respect to the bacteriology of foods other than milk has not been so exhaustively studied and is, broadly speaking, of less sanitary importance. As is well known, the share of milk in the dissemination of infection far surpasses that of all other foods, partly because of its origin, partly because of the extra hazards to which it is exposed during collection and delivery, and partly because it is consumed soon after entering the household and often without heating. Many other foods, however, are subject to occasional invasion by pathogenic and putrefactive bacteria, and their bacteriology is of growing importance.

The flesh of cattle and of swine, especially the latter, has frequently been implicated in outbreaks of food poisoning, and there can be no doubt of the importance of safeguarding the community against meat-borne infection. In many meat-poisoning outbreaks there is convincing evidence that the offending bacteria, for the most part of the *B. paratyphosus* and *B. enteritidis* groups, were derived from a diseased animal; but in other cases infection by a human carrier engaged in preparing or serving food cannot be excluded. Practically nothing is known as to the original source and habitat of such organisms as *Bacillus paratyphosus* B and *Bacillus paratyphosus* A, or of the reason for the relatively greater rarity in some parts of the world of the latter organism in human infections. The connection of the different types of paratyphoid bicilli with hog cholera and with other diseases of food animals is quite obscure.

If we ask what relation the number of bacteria in meat bears to its liability to convey disease, we are met by the same set of difficulties experienced in interpreting the colony count in milk. Small numbers of bacteria do not necessarily connote freedom from infectivity. Zweifel[9] and others have made numerous examinations of chopped meat without bringing forward any demonstration of a relation between numbers and wholesomeness. "Standards," however, have been suggested, that of 10,000,000 per gram for hamburger steak being one of the most recent. Whether such standards in the minds of those proposing them are based on some connection conceived to exist between numbers and liability to infectivity or on the hypothesis that the presence of a certain number of bacteria betokens the accumulation of an injurious amount of decomposition products is not always clear. If the latter, then it seems to be assumed that the products formed by bacteria in meat are less harmful than those formed in milk, since the permissible bacterial limit for the latter is usually set at a much lower figure. In the present state of our knowledge, any standard established on such a basis is so conjectural as to have little practical value. The uncertainty that prevails is illustrated also by the varying interpretation placed on the number of bacteria in sausage. A limit of 2,000,000 per gram has been proposed by V. d. Slooten,[10] but Savage[11] believes that little importance can be attached to the number of bacteria present, and his opinion is shared by Cary[12] as the result of a recent study of sausages in Chicago *B. coli* is commonly present in sausage, often in numbers ranging from several hundred to several thousand per gram. In any given case it may be impossible to determine whether a high bacterial content is due to lack of cleanliness in production or to multiplication, in the absence of preservatives, of an initially small number.

The bacteriology of eggs has been studied by Rettger,[13] Hadley[14] and others, with the outcome that as a rule the whites of normal fresh eggs are found to be sterile, but the yolks often contain bacteria. Furthermore, it is said, so long as the shells are kept clean and dry, extensive bacterial invasion seldom occurs. The soiling and moistening of the shell under ordinary conditions leads to rapid decomposition. Standardization of the individual shell egg is not attempted except by the rough physical method of candling, and the

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of absolute bacterial cleanliness in the derivation of foods may be cultivated to the exclusion of more essential things. It is of little use to complain that B. coli is present in a palatable egg or sausage while we leave the preparation of the food in our clubs and restaurants to possible typhoid carriers and submit to the inhalation of droplets of saliva discharged by coughing neighbors in an assembly room or street car. B. coli in water is a sanitary index; its significance in foods is dubious.

[7] Winslow: Jour. Infect. Dis., 1912, 10, 73.

[8] Brown, L. P.: Am. Jour. Pub. Health, 1916, 6, 671.

[9] Zweifel: Centralbl. f. Bakteriol., Part 1, 1911, 58, orig., 115.

[10] V. d. Slooten: Abstr., Centralbl. f. Bakteriol., Part 1, 1909, 43, ref., 193.

[11] Savage: Med. Press and Circ., 1908, n. s. 86, 167.

[12] Cary: Am. Jour. Pub. Health, 1916, 6, 124.

[13] Rettger: Centralbl. f. Bakteriol., Part 2, 1913, 39, 611.

[14] Hadley: Bull. 164, Rhode Island Agric. Exper. Station, 1916.

practical application of bacterial methods is confined to the examination of frozen and dried eggs. The value of such examinations as a guide to the control of the commercial industry has been finely demonstrated by the work of Miss Pennington,[15] through which marked improvements have been brought about in the methods used in the egg-breaking houses. There has been a reluctance on the part of well informed workers to set up a definite bacterial standard for eggs. There is no doubt that eggs containing many bacteria often pass the candling test and are placed on the market. Some such eggs yield no evidence of decomposition to the senses and are used for food without question. In a general way the amount of ammoniacal nitrogen as determined by the Folin method corresponds with the number of bacteria, and both agree with the organoleptic indications. Relatively large numbers of bacteria, however, may be present without other signs of decomposition,[16] and in the opinion of many workers it will continue to be difficult, if not impossible, to establish any definite relationship between colony count and wholesomeness. Miss Pennington and her co-workers state that after a comprehensive examination of different types of market eggs, "the eggs constituting the samples of July and August firsts, seconds, dirties and checks would be used without compunction by the housewife, baker or confectioner," although the bacterial content of some of these eggs was over 1,000,000 per gram, including many colon bacilli.[17] This is in accord with general experience. Eggs, although highly perishable, do not appear to have been definitely implicated in the causation of illness nearly as frequently as some other foods. This fact has been thought to indicate that for one reason or another poisonous bacterial products as well as bacteria pathogenic for man are rarely present. Rettger[18] and his associates, however, have pointed out that eggs derived from fowls with ovarian infection which harbor *B. pullorum* in large numbers in the yolk may produce abnormal conditions when fed to young rabbits and some other animals. It is not known to what extent this organism and its products are dangerous to man. Ovarian infection of fowls is said to be very common throughout the United States, and investigators of food-poisoning outbreaks will do well to bear this situation in mind. The danger, such as it is, is of recent development, since the wide distribution of the fowl infection has occurred only in the last few years. No recent increase in number of food-poisoning cases has been remarked. Whatever may be the possibility of specific infection with *B. pullorum*, a conservative tendency with regard to the creation of numerical bacterial standards is noticeable among workers in this field. The experienced observers of the U. S. Department of Agriculture content themselves with the statement that "canned eggs with the majority of samples having counts of less than 5,000,000 bacteria per gram, and with 100,000 *B. coli* or less can be prepared in the producing section from the regular breaking stock, provided strict cleanliness and careful grading have been observed."[19] The apparent admissibility of such high numbers of bacteria in a food substance would have been eyed askance by some sanitarians a few years back, and is today perplexing to many laymen. Water with a similar bacterial content would be looked on as next door to sewage. Perhaps no clearer demonstration could be afforded of the fact already insisted on that the significance of the bacterial examination of foodstuffs lies in its use as a guide to procedure, not in the disclosure of a specific danger.

Considered broadly, the present value of the bacteriologic examination of a food depends largely on the nature of the food and on the information that has been previously obtained regarding the conditions of production and distribution. Uncleanliness and carelessness in handling, and neglect of proper preservative methods lead as a rule to an increase in the number of bacteria. To the extent to which these factors favor opportunities for specific infection to that extent do numbers afford some indication of unwholesomeness. According to the available evidence, however, derivation of food material from an ailing animal or contact with a diseased human being is far more crucial from the sanitary point of view than simple uncleanliness. Mere enumeration of bacteria throws little light on the real possibilities of danger. Bacterial examination may be quite superfluous. When one sees a swarm of flies alighting indiscriminately on bread, meat, fruit and all kinds of organic matter, a bacterial examination is not necessary to demonstrate the undesirability of the condition.

With reference to the effects due to multiplication of bacteria in foodstuffs, more evidence is needed. The determinations of ammonia in egg products seem to indicate that any measurable degree of chemical decomposition is accompanied by a very large number of bacteria, much larger, for example, than the number ordinarily held permissible in milk. In view of the apparent innocuousness of the bacterial products in some foods, such as cheese, butter and sour milk, which are consumed without being heated, it is perhaps hasty to assume that all indications of bacterial activity should be stigmatized as attesting the presence of "ptomains" or the "poisonous products of decomposition." On the other hand, it has never been demonstrated that the products of bacterial growth in protein foods may not be insidiously injurious. The truth is that a great many foods technically more or less decomposed by bacterial growth are habitually eaten without apparent harm. We simply do not know at what point the products of bacterial growth become hurtful, or even what effect is caused by the growth of specific kinds of bacteria. Are most of the products of bacterial growth in foods physiologically indifferent in the quantities in which they are ordinarily consumed, and when injurious products are present, are they due to rare accidental contamination, or do all bacteria growing in milk, meat or eggs generate noxious substances which can inflict damage on the human organism, albeit such danger is not immediately recognized? Such questions cannot be satisfactorily answered at the present time, and need but to be asked to make clear the limitations of our present knowledge and the necessity of further investigation.

On the practical side it seems desirable that recommended procedures, standards and the like should keep pace with our advance in knowledge, not outrun it. In the dairy industry great stress has often been laid on barn conditions, and dairy farmers in some parts of the country have been forced to expend large sums of money on the assumption that specified barn conditions are essential to the sanitary production of milk. It is somewhat disconcerting to find that the most recent dairy studies indicate that "the condition of the barn and its surroundings exert practically no influence" on the bacterial milk counts.[21] No surer method of undermining public confidence and generating a reaction against sanitary measures can be found than the enforcement of regulations that are shown in a few years to have been unjustifiable and that must be rescinded. Confidence in "experts" and in "science" itself is shaken, and it becomes more difficult to carry out measures on which we are all agreed. We are sometimes forced to act on the basis of what knowledge we have, although it is notoriously insufficient, but we can avoid being dogmatic and extreme. Our so-called standards are often nothing but working guides for the experienced bacteriologist, and but ill adapted for crystallization in official regulations, where enforcement rests in the hands of the technically uninformed.

Since the bacteriology of foods presents today many unsolved problems, both of fact and of interpretation, it is clear that further investigations in this field will be of practical service in protecting against food infection, in encouraging cleanliness and common sanitary decency, in preventing economic waste by decomposition and by the condemnation of wholesome food on technical grounds, and perhaps in safeguarding the public health against dangers not now realized.

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[15] Pennington: Bull. 224, U. S. Dept. Agric., April 28, 1916.

[16] Bull. 51, U. S. Dept. Agric., p. 73.

[17] Bull. 51, U. S. Dept. Agric., p. 70.

[18] Rettger: Jour. Exper. Med., 1916, 23, 475.

[19] Bull. 224, U. S. Dept. Agric., p. 21.

[21] Harding Am. Journ. Public Health, 1916, 6, 562.

The Manufacture of Sugar

By Joseph E. Freeman,
Secretary of The American Sugar Refining Company

NO purer food, none freer from adulteration is put upon the market today than sugar. In former times sulphur fumes, ox-blood, bluing and perhaps other questionable materials were used to whiten sugar. Today methods entirely free from criticism are used by the refiners to produce this all important article of diet.

While it is possible to obtain sugar from maple trees, also from various fruits and some of the palms, and sorghum sugars from broom corn, the bulk of the world's supply is obtained from two sources—the sugar cane plant and the sugar beet. Most of the sugar consumed in the United States comes from the sugar cane.

Photograph, American Sugar Refining Co.

A TYPICAL FIELD OF SUGAR CANE.

Granulated sugar, which we now use in our homes, is the result of three distinct operations—

The first is the growing of the cane stalk.

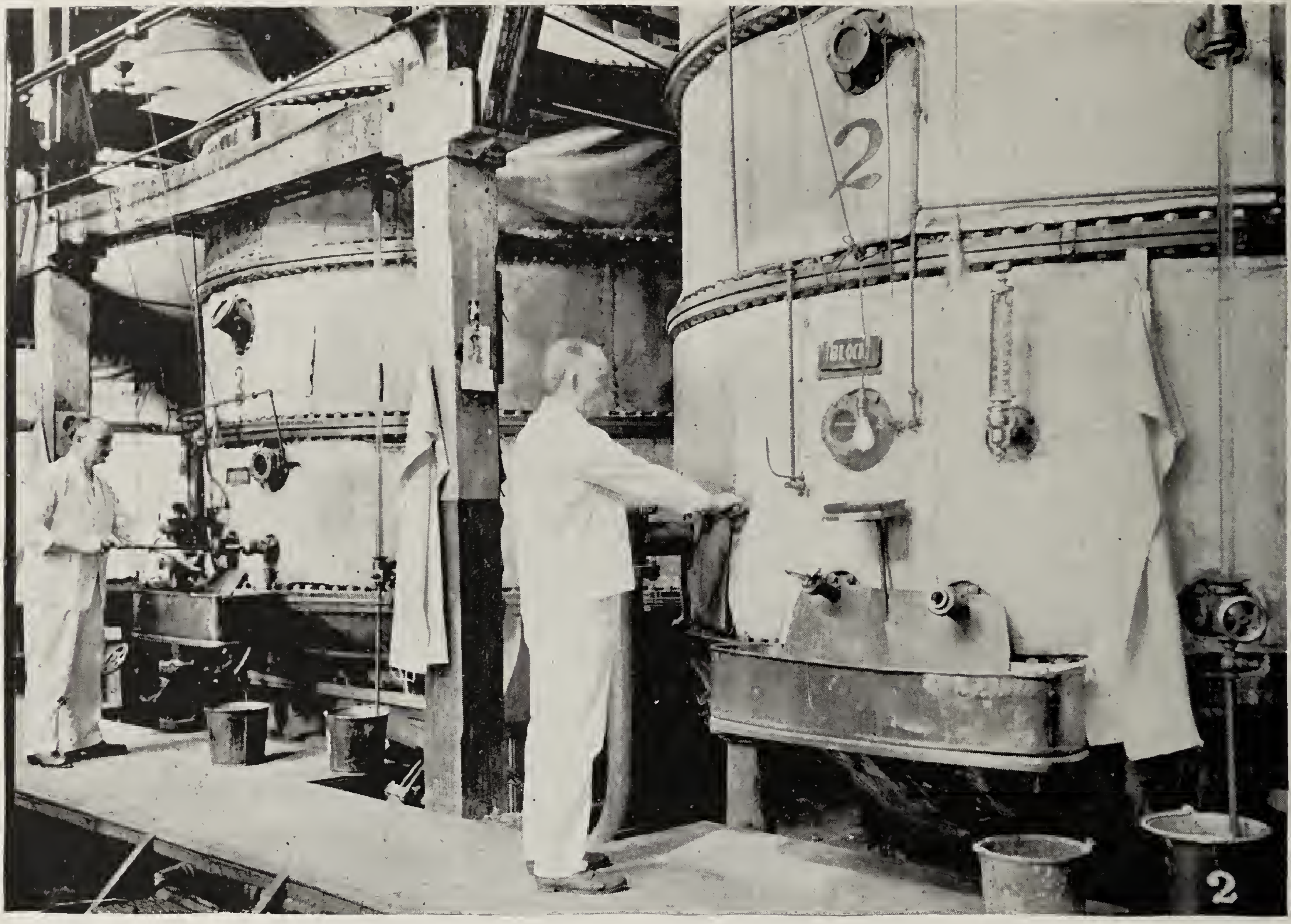
The second is the manufacture of a raw sugar from the cane stalk.

The third is the refining of the raw sugar.

The first two steps take place in tropical or semi-tropical countries. Most of our raw sugar comes from Cuba, Hawaii, Porto Rico and Louisiana, but we also draw upon Java, the Philippines, Mauritius, and other far distant countries for our supplies.

Growing Sugar Cane.

The sugar cane is a member of the grass family. It bears a slight resemblance to bamboo and the ordinary corn stalk. In fact a thicket of sugar cane in full vigor of its growth resembles, at a distance, a field of corn. The stalks reach a height of from six to twenty feet. They are divided at regular intervals by rings, where leaves have dropped off, called nodes. On alternating sides of the cane stalk at a point where it is encircled by the ring or node, nestles the bud which, when the cane is planted, sprouts, and throws out tiny roots which increase in size as the growth of the plant continues.



Photograph, American Sugar Refining Co.

CENTRIFUGAL MACHINES FOR REMOVING MOLASSES FROM CRYSTALLIZED SUGAR

Sugar cane is planted and not sown. A short piece of cane containing two or three of the rings is laid or stuck in a slanting direction in furrows or holes dug at measured intervals in the ground, and are slightly covered with earth. In a few weeks they begin to show above ground. The bud at the ring has begun to shoot out into new cane and the ring at the same time has thrown out small roots into the ground.

In some cane growing countries the cane once planted will continue to yield from three to sixteen years. From the planting to the point of ripeness requires usually about twelve months. When ripe, the stalks are cut off close to the ground and are cut into lengths of about four feet.

Manufacture of Raw Sugar.

Once the harvest has begun, the cane is speedily transferred to the sugar house, or *centrale*, where the extraction of the juice and the manufacture of the raw sugar take place. Upon arrival at the sugar house the cane is fed into mills, consisting of sets of crushers set up in tandem. The rolls of each crusher draw the cane in between their surfaces, where it is subjected to a tremendous pressure which crushes the cane and causes the juice to flow out.

On leaving the first crusher the cane is passed through shallow tanks containing water, or sprayed with jets of steam, which process aids materially in extracting whatever juice remains in the cane after the first crushing. This procedure is continued until almost all the juice has been removed from the pulp, only a small percentage of the normal sugar content remaining. The juice is then strained to remove bits of pulp, etc., and is passed on to be clarified.

The pulp from the mill, called bagasse, is dried and used as fuel to furnish steam for the operation of the sugar house.

The juice is now treated by what is known as the defecation process. In large vats the sugar is treated with a mixture of lime and water, which neutralizes the natural acids and causes all soluble impurities to precipitate or separate out from the solution.

Subsequent processes, the crystallizing in a vacuum and the separation of the sugar from the molasses in the centrifugal are, generally speaking, similar to like processes in a northern refinery later described.

Raw sugar when ready for shipment is packed in bags weighing from 100 to 325 lbs. and shipped to northern markets for refining purposes.

Raw sugar varies in quality and grade like any other raw product. In the better grades the color is a light brown, almost a yellow; the crystals are well formed and the granular structure is more apparent. In the inferior grades the color is much darker; the crystals are badly formed and there is very little granular structure. The sugar in this condition appears as a dark soggy mass. While the sucrose content of these sugars is at times very high, nevertheless, it is absolutely necessary that they be refined before they are fit for human consumption.

Dust and dirt introduced at the plantation together with the bacteria so prevalent in tropical climates can only be removed by the refining process. Masses of

Photograph, American Sugar Refining Co.
VACUUM PANS IN WHICH CRYSTALLIZATION TAKES PLACE.

mud are separated from large quantities of the raw sugar and the germs present are removed or rendered innocuous at the refinery. The inadvisability if not the actual danger of using raw sugar in the preparation of food products can therefore be easily seen.

Refining of Sugar.

The raw sugar, upon arrival at the northern refinery, is immediately unloaded from the vessel, and samples are taken for testing the sucrose content. The purchase price and duty are based upon the quality of the sugar, and this is determined by analysis of these samples.

The sugar is first dumped into a breaker which crushes the larger lumps caused by the dampness which the sugar encounters during transportation. It is then carried by elevators to the upper part of the refinery, or a building known as the wash-house, and passes into troughs containing a number of paddles so arranged that when they revolve a slow forward movement of the sugar is maintained. The sugar is here moistened, but the raw sugar crystals are not at first dissolved, the purpose being merely to moisten the surface of the crystals so that the molasses can be more easily removed when they are washed.

At the bottom of the troughs, at regular intervals, are openings, each one leading to a centrifugal machine. The soft mass of moistened sugar passes into this centrifugal and as the basket revolves water is sprayed on the sugar, washing free any molasses or other impurities adhering to the surface of the crystals. The water is turned off and the basket continues to spin until the sugar is fairly dry. It then passes into a large vat and is mixed with hot water until it is completely remelted and dissolved into a thick liquor. It is then pumped to the upper part of the filter house where the refining process really starts.

The next step in the refining process is the clarifying of the liquor. This is effected in the blow-up tanks. Here the sugar is so treated that certain impurities precipitate, or are separated out from solution. After leaving the blow-up tanks, the liquor passes by gravity through bag filters where the precipitated or suspended impurities are removed. A bag filter consists of a large closet with a shallow tank or tray on top. The bottom of this trap is pierced with holes, from each one of which a cloth bag of very fine weave from 6 to 8 feet long and about 2 feet in diameter, is suspended. Each of these bags is thrust into another bag or sheath of very coarse weave about 8 inches in diameter. There are about 800 bags in each closet.

Although all the suspended matter has been removed from the liquor, its color is not yet of the desired whiteness necessary to the production of high-grade sugar. From the bag filters the liquor passes directly on through storage tanks to the char or bone-black filters. These filters remove the organic coloring matter and a certain proportion of the remaining soluble impurities from the liquor.

A bone-black filter is an iron cylinder about 20 feet deep and 10 feet in diameter, with a conical bottom connected to a discharge pipe. This cylinder is filled

Photograph, American Sugar Refining Co.

A CANE SUGAR REFINERY.

with freshly burned bone charcoal, a tight iron lid is bolted in place, and hot liquor from the bag filters or storage tanks fed in through a pipe connection in the lid. It takes several hours for liquor to pass through the filter and begin flowing at the bottom, and it is kept continually flowing until the bone-black becomes saturated with impurities. The charred bone must then be washed with water, and reburned in a kiln prepared for that purpose, after which the bone-black is again ready for use.

Photograph, American Sugar Refining Co.

UNLOADING RAW SUGAR.

The liquor after leaving the bone-black filters is brought together at one part of the refinery to what is known as the liquor gallery. This gallery contains numerous pipes so arranged that they individually or collectively can feed into any of 7 or 8 copper gutters which distribute the liquor to various parts of the refinery. It is at this point that the refining process is controlled, and the tests of the liquors and syrups determining their purity and adaptability for the various grades of sugars are made.

Having passed through the liquor gallery the liquor or syrup is run into storage tanks. From these the liquor is drawn into vacuum pans where crystallization is effected. A vacuum pan is a large enclosed cylindrical vat, capable of holding from 100 to 250 barrels. On the inside are numerous coils of pipe so arranged that when the pan is filled with syrup and steam introduced through these coils, the whole mass becomes evenly heated.

The reason for boiling the syrup in a vacuum is because the boiling point of water is affected by the pressure of the atmosphere upon it. Distilled water boils at 100 C. (212° F.) when not under vacuum. When the pressure is increased the boiling point is raised; when the pressure is decreased, the boiling point is lowered. Inside a vacuum pan the atmospheric pressure is considerably less than it is on the outside, consequently the syrup contained in the pan will boil at a much lower temperature than it would if the atmospheric pressure had not been reduced.

The process of boiling to grain is observed from time to time by the pan man in different ways. Affixed to the side of the pan is a gauge, similar to the water gauge on a steam boiler. This shows the amount of syrup in the pan. For purposes of general observation of the boiling syrup, there are placed at the side of the pans small glass covered windows, called sight holes. For testing the growth of the crystals an ingenious contrivance called a "proof stick" is provided to obtain samples of the boiling mass without destroying the vacuum.

Photograph, American Sugar Refining Co.

TESTING FOR IMPERFECTIONS.

The size of the grain produced in the vacuum pans is controlled by the pan man and is due entirely to his skill in manipulation. The liquor is boiled under vacuum until by lowering the temperature a first lot of small crystals form, then a small amount of fresh liquor is added and the boiling continued until the original crystals have slightly grown and new smaller ones formed. At the first appearance of small crystals more liquor is introduced which dissolves these new formations and as the boiling continues deposits fresh sucrose on the larger crystals, still further increasing their size. By repetition of this process crystals of almost any size may be formed.

When the liquor in the vacuum pan is very largely reduced to crystals, the mass is dropped into mixers and thence is drawn off into the centrifugal machines.

A centrifugal is a perforated metal cylinder the inner surface of which is covered by layers of screens with minute perforations. This cylinder rotates vertically at high speed within a steel shell, the centrifugal force causing all liquid to pass through the perforations while the crystals are retained. The liquid thrown off is returned and retreated subsequently. The white sugar remaining in the centrifugals is washed with distilled water to clean the individual crystals of any syrup. From the centrifugals the sugar is conveyed to the granulators. The granulators remove the remaining moisture from the crystals by throwing the sugar about over the surface of a steam-heated steel drum. This process is comparatively short and the dry sugar drops continuously from the end of the drum into mechanically operated sieves which remove lumps and large crystals and allow the remainder to pass down a chute to the barreling or packing department, from which it is shipped.

The soft sugars are refined in the same manner as those of the granulated variety, a lower temperature being employed, however, in the vacuum pans. This produces a sugar of small grain, and retains the delicious molasses flavor so desirable in the manufacture of certain products.

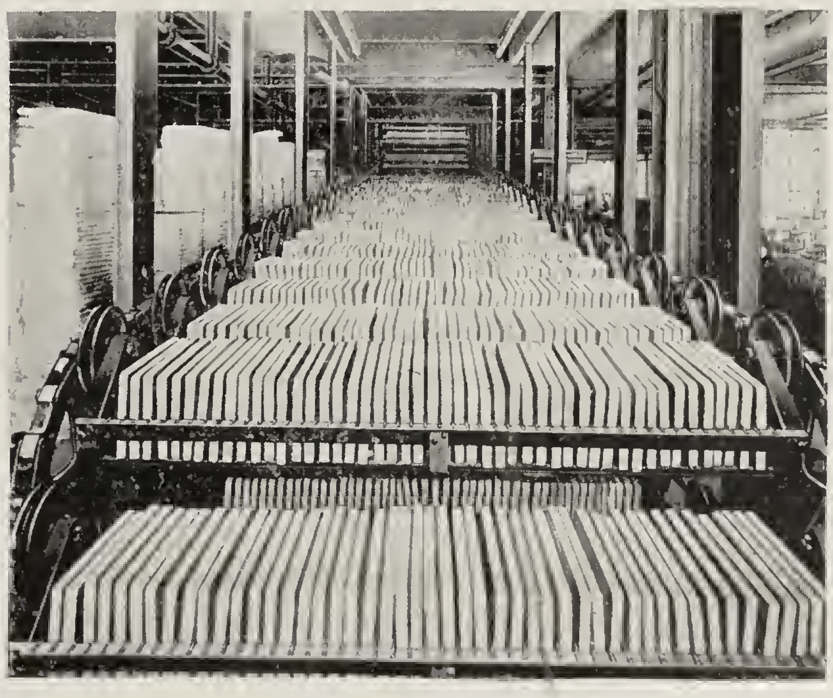
Powdered sugar is granulated sugar ground to a fine powder and then carefully screened to insure uniformity in the various degrees of fineness required.

Package Sugars.

It has been the constant aim of the American Sugar Refining Company to insure the same degree of purity in its products to the housewife as to the manufacturer using sugar. The baker or confectioner receives his sugar in the original package and thus enjoys the careful supervision under which bulk sugars are packed at the refinery.

The housewife however has purchased her sugar in many cases weeks after the original barrel or sack has been opened, during which time the sugar has been subject to various forms of contamination—perhaps scooped out of a barrel repeatedly opened to germs, flies or dust or contained in a porous bag absorbing odors and nosed by inquisitive animals. The American Sugar Refining Company in that instance can only guarantee the purity of its product to the grocer and the housewife had no choice other than to purchase her supply of sugar also in barrels.

This condition no longer exists, as the introduction of package sugars eliminates all possibilities of the purity of the sugar being sacrificed to the carelessness or indifference of the dealer. The housewife purchasing package sugar is absolutely assured of the protection which the refinery inspection and supervision guarantees. High-grade sugars, such as the "domino" brand, are to the hundredth degree free from foreign matter, enclosed in a neat, strong carton or a stout cotton bag, which has been weighed, packed and sealed by wonderfully ingenious machines. They afford the housewife the opportunity of obtaining in sanitary form the different varieties of sugar needed in the household.



Photograph, American Sugar Refining Co.

PLATES OF SUGAR READY FOR THE SAW.

Sugar, Once a Luxury, Now a Necessity

By Truman G. Palmer,

Secretary of the United States Sugar Manufacturers Association.

WITH the exception of sugar, practically all of the more important food commodities consumed in the world today have been classed more or less as necessities since time immemorial. Sugar, on the contrary, was not even known to the ancients, and its general use as a household necessity is of comparatively recent date. Sugar cane first was mentioned as the "sweet sticks of the east," and it is supposed to have originated in India. In 627 A. D. sugar formed a part of the spoils secured by the Byzantines when they conquered Persia, from which time on it spread westward, reaching Spain in 755 A. D. About the middle of the fourteenth century a Venetian discovered the art of refining sugar and shortly thereafter reference was made of the receipt of a 50-ton cargo of sugar in London, where it was exchanged for wool, the first mention of sugar as an article of commerce. In the middle of the seventeenth century Queen Elizabeth of England, in her domestic household, first introduced it as an article of diet.

The high prices of sugar, however, precluded the possibility of Queen Elizabeth's example being followed by her subjects, and the limited quantities of sugar produced in the seventeenth and eighteenth centuries were used mostly in the arts and sciences. In 1750 the London price of sugar had fallen to 17½ cents per pound, and at this price the demand for this new article of diet amongst the wealthy classes increased so rapidly that, notwithstanding the fact that the production reached 1,000,000 tons in 1806, the price of sugar in both London and Paris had risen to 31½ cents per pound, an increase of nearly 100 per cent in fifty-six years.

It thus will be seen that even as late as a century ago sugar was a luxury, purchasable only by the wealthy few. Yet since that time, its evolution from a luxury to a necessity has been so rapid and the price has been so lowered that there is not a household in the civilized world which does not use sugar; to be compelled to dispense with its use would be deemed a great hardship. Today sugar not only is a household necessity, but it enters largely into nearly every manufactured food product. It is an essential ingredient in the manufacture of condensed milk, bakery products, confectionery, chewing gum, ice cream, canned fruits, preserves, medicines, and hundreds of other food products in daily use in every household. It is estimated that between forty and fifty per cent of the sugar consumed in the United States, the largest consumer of sugar in the world, enters into manufactured products.

What has brought about the evolution of sugar from a luxury to a necessity in so comparatively a short time? The simplest answer would be that it was increased production and a consequent lowering in the price of that commodity. But back of this lies the equally important question, what was the potent factor in lowering the price?

Prior to the beginning of the nineteenth century, the world obtained its sugar supply solely from the cane of the tropics. Four hundred years elapsed from the time the art of refining can sugar was discovered before it was introduced as an article of household diet, from which time the world's production of can sugar began to increase; but even after the lapse of another century and a half the price of sugar still remained at such an exhorbitant figure as to make its use prohibitive in the ordinary household.

It seems highly probable that although the cane sugar of the tropics is produced under the most advantageous conditions, the price of sugar still would prohibit its universal use if the world had continued to rely solely upon the tropics for its sugar supply. Sugar cane is a grass which in the tropics will grow without cultivation, in many localities springing from the same root year after year for from twenty to forty years without replanting. For centuries the cane sugar of the tropics was produced by slave labor and even now, the labor employed on sugar plantations is the cheapest class of labor in the world. In Java, plantation field laborers are paid but six to ten cents per day. But notwithstanding these favorable conditions, cane sugar production without competition lagged behind the demands of the world's sweet tooth, and if today the world had continued to depend solely upon cane sugar for its supply, the price of that commodity would be many times what it is and sugar might still be classed among the luxuries, as it was a little over a century ago.

Century after century had elapsed since the method of refining sugar was discovered, without any great scientific thought, research or methods being introduced either into the cane fields or sugar mills of the tropics. Crude methods of crushing the cane, boiling the juice and separating the crystals from the molasses remained in vogue in the principal cane-sugar producing countries of the world until after the middle of the last century; in fact, many of the smaller cane-sugar producing countries are today using the antiquated methods of centuries ago. Like the tropical laborer, by whose efforts it is maintained, the cane-sugar industry was improvident, lethargic, simply maintaining its own from year to year, without any thought of increasing its magnitude through improved methods. The tropical spirit of "putting it off until mañana" permeated the industry in whatever part of the tropical world it was established. The world might sit by hungering and pleading for more sugar, willing to pay a price for that commodity which would yield enormous profits to the tropical planter. But this was no incentive to him to study out new methods by which he could increase his yields. He was making good profits on what sugar he produced, so why should he worry because the world wanted more sugar and could not get it. For decade after decade this condition prevailed, and were the world still securing its sugar supply entirely from the tropics, the condition would be little changed from what it was one hundred or two hundred years ago.

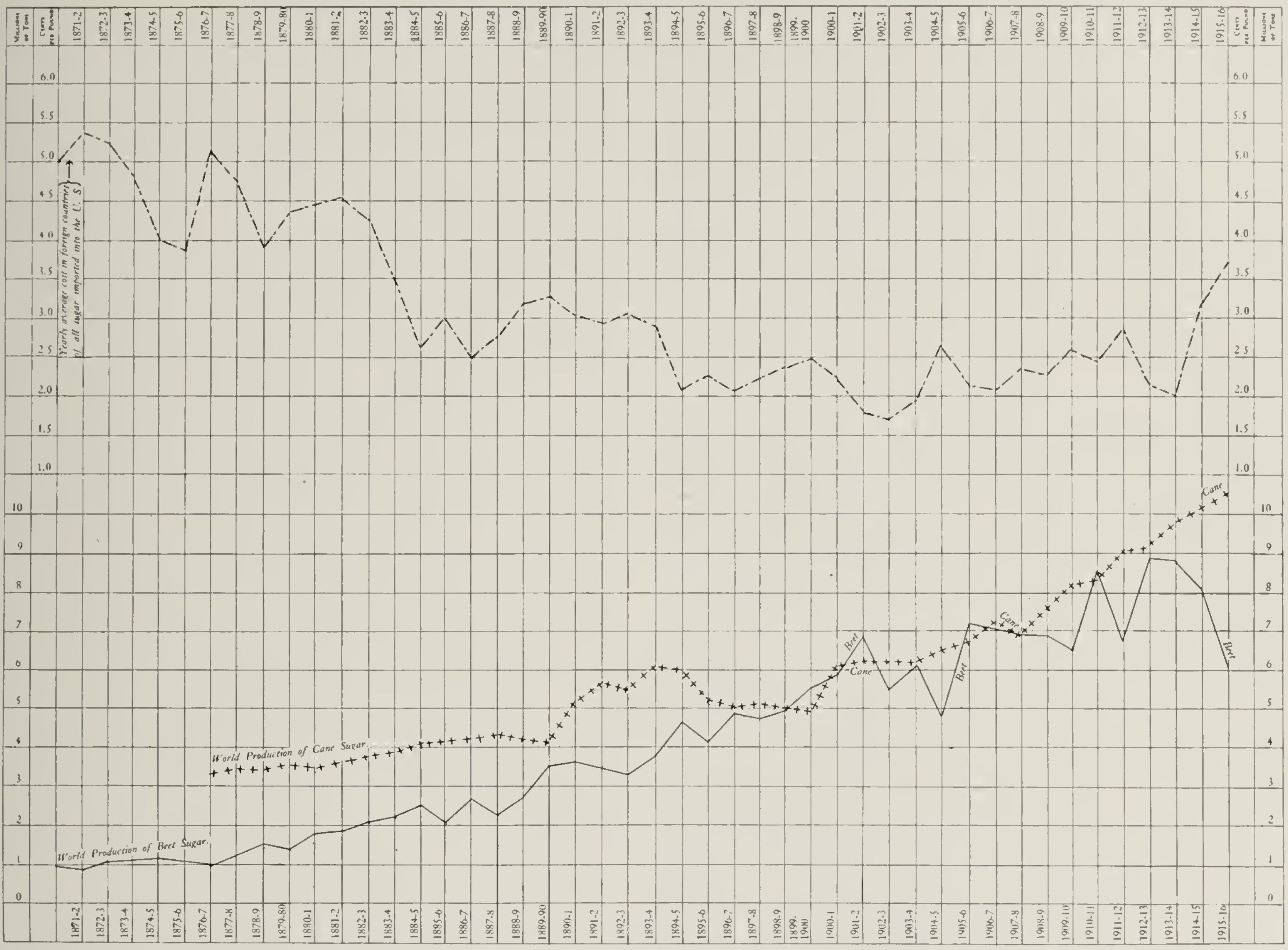
The lack of progress in the cane sugar industry of the tropics and the consequent continued high price of sugar, led to the making of most important discoveries in the eighteenth century, and at the beginning of the nineteenth century a new "Richmond entered the field" in the form of the humble though potential sugar beet.

The fact that beet roots contained sugar was discovered in 1705 by Oliviere de Serres, the famous French agronomist, but the discovery was not exploited. A half a century later, Marggraf, a Prussian chemist, obtained sugar crystals from beets experimentally, but he failed to prosecute the work to a conclusion. After Marggraf's death in 1782, his pupil, Achard, secured the financial assistance of Frederick the Great, in order to conduct field and laboratory experiments, but his work ceased for a time with the death of Frederick in 1786. Some years later, Archad enlisted the support of Frederick's successor, Frederick William III. In 1799 Achard invented a method of extracting sugar from beet roots, and in 1801, with money furnished by his Sovereign, he erected at Cunern, Silesia, the first beet sugar factory in the world, where for several years he produced small quantities of sugar from low-grade beets at a high cost of production.

As a result of nearly ten years of careful scientific agricultural research on experimental beet fields near Paris, Napoleon's chemists and agronomists had become convinced that the culture of sugar beets so improved the chemical and physical condition of the soil as greatly to increase the yield of cereal crops which followed in the rotation. When the fact became generally recognized, that sugar could be produced commercially from beets grown in continental Europe, and that by rotating cereal crops with sugar beets the acreage yield of the latter was greatly increased, Napoleon Bonaparte, in 1811, by imperial decrees and liberal imperial appropriations, firmly established the beet sugar industry in France, where 334 small factories were erected within two years.

Napoleon's action marked the beginning of a new and important epoch in the history of sugar. The Governments of Germany, Austria-Hungary, Belgium, The Netherlands, Russia and other European countries soon began to encourage the establishment of the industry by the granting of bounties, subsidies, etc., with the result that prior to the outbreak of war in Europe over 1,200 immense beet-sugar factories were scattered over Europe, producing over 9,000,000 tons of beet sugar, or about one-half of the world's supply.

EFFECT OF WORLD SUGAR PRODUCTION ON THE WORLD PRICE OF SUGAR, ILLUSTRATING THE APPLICATION OF THE LAW OF SUPPLY AND DEMAND.



The advent of beet-sugar culture in the early part of the nineteenth century may be said to mark the beginning of the evolution of sugar from a luxury to a necessity. It entirely revolutionized the sugar industry of the world, building it up from an improvident, happy-go-lucky business of the tropical planter, to a world-wide, up-to-date, thriving, scientific industry.

In order to achieve a commercial success, the beet-sugar industry of necessity called to its ranks the greatest scientists and mechanical engineers of Europe. While the wild cane is as full of sugar as is the cultivated, the beet with which the industry started contained but a fraction of the sugar percentage of the cane, and it required infinitely more work to produce the crop. Chemists devised new methods of treating the raw material and mechanical engineers invented machinery and processes for working out the ideas of the chemists and making them a commercial success. Not only was it necessary from its inception that scientific methods be studied and applied to the manufacture of beet sugar in order to compete with tropical cane sugar, but competition amongst beet sugar manufacturers in the same and in different countries, has been so keen that inventive genius constantly has been at work seeking new and improved methods and processes in both field and factory. Agricultural scientists devoted their lives to the amelioration of the sugar beet, and as a result, the commercial beet roots of today contain from 16 to 21 per cent of sugar, or nearly double the percentage of sugar which is contained in sugar cane.

Conceived by science, born of necessity, nurtured by inventive genius, nursed and tutored by the brightest economic and agronomic minds of Europe, fathered, supported and encouraged by wise governmental aid, the beet sugar industry has grown to sturdy manhood, and within the past seventy years of its life, from 1840 to 1913, has increased in magnitude from 45,000 tons to 9,587,588 tons, or 21,000 per cent.

While during the same period the cane-sugar industry has grown from 1,000,000 tons to 9,432,118 tons, or 843 per cent. I feel safe in saying, without fear of contradiction, that the beet-sugar industry is in reality responsible for the present stabilized condition of the world's sugar industry, both cane and beet, for its present magnitude, and for the fact that, under normal conditions the price of sugar is so low as to make it within easy reach of the humblest household in the remotest corners of the globe.

Although the processes of manufacturing cane and beet sugar are dissimilar up to the time that the juice is extracted, from that time on, the methods of manufacturing the sugar, now are very similar, and while both modern cane and beet sugar factories represent the result of the highest scientific application, it nevertheless is true that nearly all of the improved scientific and mechanical improvements in cane-sugar mills first were applied in beet-sugar factories or had their inception in the minds of experts connected with the beet-sugar industry.

Again, with active, energetic competition from the beet-sugar industry of the temperate zone, the cane-sugar industry of the tropics was compelled to abandon its lethargic attitude and awaken to the fact that in order to exist at all, it must adopt the more up-to-date methods of its northern competitor, and thus progression has been forced upon it by the beet sugar industry.

And now a word regarding the effect which the establishment of the beet-sugar industry has had and is having upon the price of sugar throughout the world. Aside from the general effect which the doubling of the world's supply of a food commodity may have in reducing its price, it is interesting to note that notwithstanding a steady increase from year to year in the world's production of both beet and cane sugar, the whole price of sugar has fluctuated more in conformity with the rise and fall in beet sugar production than has been the case with the production of cane sugar. Especially is this noticeable during the past three years, since the beginning of the war in Europe. Notwithstanding the fact that during the war, cane sugar production has increased by leaps and bounds, the material decrease in the beet-sugar production of the world, due to the war, practically has doubled the price of sugar throughout the world, and high prices will continue to prevail until beet-sugar production again reaches its normal level.

The accompanying chart illustrates the relative effect which the rise and fall in the production of beet and cane sugar has had upon the world price of sugar during the past forty-five years. The chart shows the world production of beet sugar from 1871 to 1915-16; the world production of cane sugar from 1876-7 to 1915-16; and the yearly average cost in foreign countries of all sugar imported into the United States from 1871-2 to 1915-16. As the United States is the largest importer of sugar in the world, the yearly average cost in foreign countries of all the sugar we import should represent, as nearly as is possible, the "world price of sugar."

From an agricultural and economic point of view, the beet sugar industry is considered so important by continental European governments that it has been encouraged and protected in every country in which it has been established. Germany alone spent over $350,000,000 in export bounties in order to build up the industry, not simply because of the fact that by so doing she was able to supply her own sugar requirements and export millions of dollars worth of sugar every year, but primarily on account of the fact that by encouraging her farmers to rotate their cereal crops with sugar beets, she was greatly increasing her acreage yield of the latter crops year by year, thus making the problem of feeding her ever-increasing population with the products of her own soil, more easy of solution. During the period from 1879 to 1909, Germany increased the acreage yield of her four principal grain crops, wheat, rye, barley and oats, over eighty per cent by rotation with sugar beets and other hoed root crops. In 1879, that country cropped 32,491,000 acres to wheat, rye, barley and oats, and from this acreage harvested 693,187,000 bushels of the four crops. In 1909, from a like number of acres of the same crops, Germany harvested 1,247,000,000 bushels, an increase of 554,550,000 bushels. During the same period, the acreage yield of these four crops in the United States remained practically stationary, notwithstanding the fact that the soils of Germany have been cropped for centuries, while those of the United States may be said to be almost in their virgin state. With all her ports blockaded during the past two years, Germany's increased crop yield has enable her to maintain a population of 70,000,000 people on the products harvested from a cultivated area less in extent than the total area of the State of Colorado.

The following table shows the acreage yield of wheat, rye, barley, oats and potatoes in Germany and the United States in 1913, the year preceding the outbreak of war in Europe.

	Germany. Bushels per acre.	United States. Bushels per acre.
Wheat	35.1	15.2
Rye	30.4	16.2
Barley	41.3	23.8
Oats	61.1	29.2
Potatoes	235.8	90.4

It will be seen from the above that German farmers harvest double the number of bushels per acre of these five crops as are harvested by American farmers. As all of her economists and agronomists testify, these remarkable German yields have been brought about through rotation of cereal crops with sugar beets and other hoed root crops. Remarkable as they are, they have been equaled and exceeded by many of our American farmers who have introduced sugar-beet culture into their cycle of rotation.

During the years of plenty in this country, little attention was paid by the average American farmer to increasing his acreage yield of breadstuffs. While it was well known that American farmers were not securing the maximum yields which they should, the total yields were more than sufficient to feed our own people, and that condition seemed to be entirely satisfactory. But war has brought about a change; a serious problem confronts the American people today, and an unusual thing is happening: the supply of grains and other agricultural crops are exceedingly low; prices of all food commodities are excessively high; and the Government officials are circularizing American farmers, pleading with them to use every effort to increase the yields of their lands in order to prevent a further shortage in our food supplies.

We have in this country 274,000,000 acres of land adaptable to sugar beet culture, of which amount but 669,000 acres were cultivated to beets last year, supplying the raw material for 74 beet sugar factories. Germany, the largest beet sugar producing country in the world, has 342 beet-sugar factories, and her total acreage of sugar beets and other hoed root crops now amounts to more than one-fourth of all the cultivated acreage in the Empire. As stated before, German economists and agronomists are a unit in ascribing the high acreage yields obtained in that country to the fact that German farmers practice a systematic rotation of cereal crops with sugar beets and other hoed root crops, and it is only reasonable to assume that if the beet sugar industry were expanded in this country in the same proportions as it has been expanded in Germany, we today would be producing double the yields of breadstuffs, and there would be little cause for worry about our ability, in the present crisis, to feed our people at reasonable prices.

The first attempt to grow sugar beets in the United States for sugar making purposes, was made by Vaughan and Ronaldson in the vicinity of Philadelphia in 1836. The first factory in the United States was erected by Edward Lee Church, at Northampton, Mass., in 1838, and in 1839 this factory produced 1,300 pounds of sugar, the first sugar to be produced from beets in the United States. Subsequently no less than 12 factories were erected in six states, from Maine to California, all proving failures. In 1870 Mr. E. H. Dyer erected at Alvarado, Cal., a factory which in 1879 became successful and since has continued in operation, the first successful factory in the United States.

In 1888, the 2 beet sugar factories then in existence in the United States produced 2,084 short tons of sugar. In 1898, seventeen factories produced 36,368 tons; in 1908, sixty-two factories produced 425,884 tons; in 1915, sixty-seven factories produced 862,800 tons, and in 1916, the seventy-four operating factories produced 823,000 tons. In 1916 there were 84 factories in the United States, located in 19 states from Ohio in the East to California in the West, and fourteen new factories are being erected this year.

The industry represents an investment in factory sites, buildings and machinery of approximately $100,000,000, producing about twenty per cent of the total sugar consumed in the United States, or a little over four per cent of the world's sugar production.

Technology of Sugar

By Frank C. Beetson,
of the American Sugar Refining Company.

Sugar in a pure state is a compound consisting of carbon, hydrogen and oxygen, typical of that class of foods known as carbohydrates. The elements mentioned are combined in sugar in the following proportion: 12 parts carbon, 22 parts hydrogen, 11 parts oxygen. The carbohydrates are chemical compounds composed of carbon united to hydrogen and oxygen, the last two elements being in the same proportion as in water, i. e., two hydrogen to one oxygen atom.

There are two principal classifications of sugars, namely, single and double sugars, cane sugar (sucrose), milk sugar (lactose) and malt sugar (maltose) are some of the double sugars or disaccharids. Grape sugar (dextrose) and fruit sugar (fructose or levulose) are common single sugars, or monosaccharids.

Cane sugar (sucrose) when purified forms pure white crystals. They will dissolve in about one-half their weight of cold water. When heated to 320° F. cane sugar melts to a colorless liquid which solidifies on cooling to a brittle, transparent, amber-colored mass called barley sugar. When heated to a higher temperature some of the water is expelled and it becomes dark brown in color and acquires a somewhat bitter flavor. This brown sugar is called caramel.

By a simple chemical process called inversion, sucrose can be split up into two other sugars known as dextrose and levulose, the combination being known as invert sugar, and is a liquid in form. This inversion can also be brought about by the action of heat and dilute acids, or by heat alone, or through the agency of fermentation. Certain ferments, known collectively as enzymes, the most important of which is called invertase will invert cane sugar. These ferments occur in yeast and are also widely distributed in the vegetable kingdom and in the intestinal tract of the human body. Sugar when eaten must first be inverted by these ferments before it can be assimilated by the system.

A mixture or solution of sugar and water forms what is known as a simple syrup. If the water is allowed to evaporate completely the sugar reappears in its original crystalline form. If, however, cane sugar is inverted and assumes a liquid form it cannot crystallize out as in the case of a simple syrup because it has become hydrolized. That is to say, it has become chemically combined with the water. When this chemical process is complete the sugar and water lose their original identity and the elements composing them (carbon, hydrogen and oxygen) become rearranged in such a way as to form two entirely different sugars.

The term "inversion" is the name given in chemistry to the hydrolysis of cane sugar to a mixture of glucose and fructose (invert sugar): it was chosen because the operation was attended by a change from dextro-rotation of polarized light to a laevo-rotation.

An instrument called a polariscope is employed in determining the sucrose content of a sugar solution. It has been found that a ray of polarized light upon passing through a solution of sucrose and water is deflected to the right. This same ray of light when passed through the same column of liquid after it has become converted into dextrose and levulose is found to be deflected to the left, and thus the sugar is said to have become inverted. The term "altered" was formerly applied. Sucrose and levulose are spoken of at times as right or left hand sugars. Dextrose is also a right hand sugar but much more so than sucrose.

Invert sugar is the most commonly known of the single sugars and one which finds a large use by manufacturers. It is composed of equal parts of dextrose and levulose. Its uses will be described later.

In the preserving of fruit the sugar used becomes inverted by the heat employed and the acids present. The strongly acid fruits are better suited for making sweetened products than those in which less acidity has developed. Over-ripe fruits diminish in acidity and are less suitable. A thin solution of sugar and fruit juice is subject to decomposition by the germs of fermentation and in order to act as a preservative for fruits the solution must be concentrated.

In baking bread, the fermentation of the sugar used is brought about by another ferment known as zymase. Cane sugar will not ferment, but when acted upon by invertase and converted into dextrose and levulose these sugars are, in turn, fermented by zymase and converted into alcohol and carbon dioxide (carbonic acid gas). The carbon dioxide expands and forms small gas pockets throughout the dough and as they continue to increase in size the dough "raises" and becomes "lighter" The alcohol is evaporated in the ovens by the heat which also ends the activity of the fermentation germs. Zymase is used in the preparation of alcohol, and also for converting sweet cider into vinegar or acetic acid.

Dextrose (grape sugar) is found in yellowish crystals in raisins and dried figs, and also in small quantities in various fruits and in the unripe sugar cane, but it occurs chiefly, together with levulose, as a constituent of invert sugar and honey. It is also manufactured in large quantities from glucose or corn syrup, and is known commercially as "anhydrous starch sugar." It is much less sweet than sucrose, and is used mostly by bakers as a yeast food and for giving color to the crust of bread. It will darken at a much lower temperature than sucrose. It resembles small granules of starch and has a pale yellowish tint.

Levulose (fruit sugar) is formed with dextrose in the inversion of cane sugar and, with dextrose, occurs in honey. It is also found in the unripe sugar cane and in small quantities in many fruits, normally in the form of a syrup. Honey is practically a form of invert sugar in which the proportion of levulose is slightly greater than is that of dextrose. In addition to dextrose and levulose honey also contains a small quantity of sucrose—about 8 per cent. If, however, a larger proportion of sucrose is present it is evident that the honey has been adulterated or that the bees have been fed on a solution of sucrose and water. This method of increasing the production is at times practiced when the natural source of nectar of flowers is inaccessible to the bees. It results in an inferior grade of honey, as it is one in which sugar crystals appear.

Milk sugar (lactose) is obtained from milk. When purified it forms large white crystals. It is decidedly less sweet than sucrose and is very easily digested. It is used at times in the manufacture of prepared foods for invalids or children.

Sprouting barley contains an enzyme, known as diastase, which is capable of converting starch into a sugar called malt sugar (maltose). In the manufacture of this sugar the grain is allowed to sprout to produce the enzyme. After the germinating process is stopped by raising the temperature the diastase rapidly converts the starch which the grain contains into maltose and dextrose. Many so-called "predigested" and "malt" products have this sugar as their basis.

The sweetening power of cane sugar is considerably greater than that of any of the single sugars and for that reason its value as a commercial product far exceeds that of any of the more easily assimilated single sugars.

The double sugars have no value as an article of food while they remain double. In that form they cannot be assimilated by the human system. This inversion, however, is effected in the process of digestion by the acidity of the digestive juices and ferments present in the human body.

The value of sugar as an article of food is being recognized more and more each day. It is readily and completely assimilated by the human system. Convincing experiments show that while sugar constitutes only 5.4 per cent of the diet in America it furnishes 17.5 per cent of the total energy in the diet.

The significant fact about sugar is that 98.9 per cent of its caloric energy is available in the body. A food calory is a measure of energy contained in food which will impart a certain amount of heat when assimilated by the body. It is this remarkably high percentage of digestibility which makes sugar so valuable a food. A comparison of the food value of sugar as compared with other articles of diet is of interest.

AVAILABLE ENERGY OF SUGAR WHEN CONSUMED AS FOOD.

	Per cent.
Meat and fish	87
Eggs	89
Fruits	90
Cereals	91
Dairy products	93
Vegetables	95
Sugar	98.9

The terms "strong," "weak," coarse, fine, hard, soft, dry or moist used in describing the various classifications of sugar do not in any way apply to the quality of the sugar. The point of first importance to a confectioner is the relative "strength" of his sugars. The term is often misunderstood but rightly embraces the following points:

A "strong" sugar must crystallize readily and be able to hold quantities of glucose, cream of tartar, or other ingredients at the temperature to which it is cooked. These qualities are essential in a good summer sugar for they prevent running and sweating of goods in which they have been used, even when exposed to hot and moist climatic conditions. Goods cooked with "strong" sugars are, however, liable to grain and must be cooked with that possibility in mind.

A "weak" sugar is one which does not readily crystallize and is, therefore, particularly suited to the manufacture of pure sugar fondant and decorative work where an absolutely white product is required, as little or no cream of tartar or other grain killer is needed. With a sugar of this character, the loss of color which usually accompanies the use of those agents, is eliminated. A "weak" sugar loses color when heated to any extent. Great care must be exercised on this point. Different sugars invert to various degrees of inversion when heated. It is thus possible to attach a definite meaning to the terms "strong" and "weak." A "weak" sugar may be defined as one that will undergo considerable inversion when heated to the high temperature employed in making hard candy, whereas the inversion in the case of a "strong" sugar will be relatively small.

The size of the grain is often an indication of the strength of the sugar. The coarser the grain usually the weaker the sugar. The terms coarse or fine simply refer to the size of the sugar crystal. "Confectioners' granulated" is spoken of as a coarse, or coarse grained sugar, while "fine granulated," as the name implies, is known as fine or fine grained. The hard sugars are those of the granulated variety possessing a hard, firm texture while the soft sugars are soft and moist. A soft grained sugar is one having a hard crystal but which dissolves quickly.

Laboratory Control in Sugar Making

By H. V. Cadwell

In no industry is the chemical laboratory of as great importance as in sugar manufacture, for the various operations in it must be regulated with extreme care or large losses would immediately result. The weighing of the cane, the crushing, the additions of water, the evaporation, crystallization, and, in fact, every step in the process is checked and guided by the chemist. His laboratory work must not only be accurate but the sampling must be done as carefully as is possible in order that representative samples may be obtained for laboratory analysis.

The sucrose is present in the form of a solution until the last step of the process and the quantity is determined by the density of the solution, the optical rotation of light passing through the solution or by direct weighing of the sugar in the evaporated sample.

The density method is the works method which is approximate but rapid, and is obtained by means of a hydrometer. The hydrometers for the sugar industry are called saccharimeters and the most common type is that calibrated in degrees Brix, by which the hydrometers are graduated to read percentages by weight of sugar in the solution instead of the specific gravity of the ordinary hydrometer. Saccharimeters are generally placed in a glass cylinder which is so arranged as to receive a small part of the juice from the main juice lines all of the time. The workmen may then be able to read the percentage of sugar in the solution at any time from the graduation on the saccharimeter stem at the surface of the liquid.

The determination of sucrose by means of a polariscope is the more accurate and general laboratory method. This instrument is one for the measurement of the optical rotation of light by certain types of solutions. On the theory and types of polariscopes and saccharimeters, which are polariscopes graduated in percentage of sugar instead of degrees of rotation of light, there have been volumes written, so I shall not take that up here. The various types of saccharimeters use different methods for this determination but the procedure in general is as follows:

A definite volume of the sugar solution, or a definite weight of sugar is made up to a definite volume, according to the saccharimeter used, and is clarified with alumina cream or basic lead acetate solution. The clear solution is then placed in the polarizing tube of the saccharimeter which, in turn, is placed in the saccharimeter. The light from the light source is allowed to pass through the instrument and the analyzers adjusted until the field is uniform. The percentage of sugar by weight in the solution is then read directly from the scale on the instrument.

The direct weight method is the least rapid. A small porcelain or lead capsule containing sand or pumice is weighed and the sugar solution added to this, when it is then re-weighed. The difference is the weight of the solution. This is then evaporated on a water bath or in a vacuum oven to constant weight. The weight of sugar is found by difference.

Crystallized sugar is one of the purest of substances that is met with in everyday use and is rarely adulterated. A determination of moisture by drying two to five grams in a vacuum and a determination of the ash by igniting the sample from the moisture determination constitute the analysis usually applied to it.

Since each sugar house and refinery has a process modified to produce sugar most profitably in the district in which it is located and as the chemical laboratory in this industry is more of an efficiency department than a mere analytical laboratory it is quite difficult to give specific methods that would apply to all. It would be best for the sugar chemist to study his local conditions and form his own routine from the methods given in the various treatises on the subject of sugar analysis. The following list will be found to be quite valuable:

A Handbook for Cane Sugar Manufacturers and Their Chemists, by Guilford L. Spencer. 1912. John Wiley & Sons.

A Handbook for Chemists of Beet Sugar Houses and Seed Culture Farms, by Guilford L. Spencer. John Wiley & Sons.

Cane Sugar, by Noel Deen. 1911. Norman Rodger, Altrincham, England.

Calculations Used in Cane Sugar Factories, by Irving H. Morse. 1904. John Wiley & Sons.

The Polariscope in the Chemical Laboratory, by George W. Rolfe. 1905. The Macmillan Company.

A Handbook of Sugar Analysis, by C. A. Browne. 1912. John Wiley & Sons.

Food Inspection and Analysis. Volume 1, by Albert E. Leach. 1913. John Wiley & Sons.

A WAIL FROM THE DIRTY FOOD DEALER.

Verily, the food inspector is no friend of mine.

He forceth me to screen my doors and windows and to provide coverings for all the eatables which I keep in my store.

He causeth me to scrub my ice box once a week. And heapeth upon me his wrath when I insist that twice in a twelve-month should suffice.

Yea, he waxeth hot and threateneth me with the law, because I remove not daily all garbage and other refuse from my store.

Likewise, he fumeth and frotheth when he findeth my meat grinder and my sausage mill are not clean. And neither doth he hesitate to tell me my sausage is sour and flingeth it into the garbage can. Also he laugheth me to scorn when I do protest against the injunctions he insists I must obey, or "tell my story to the judge in the court."

And always he sayeth unto me that I must clean up and keep clean, or he will take from me the license for which I have paid, and take me into court besides.

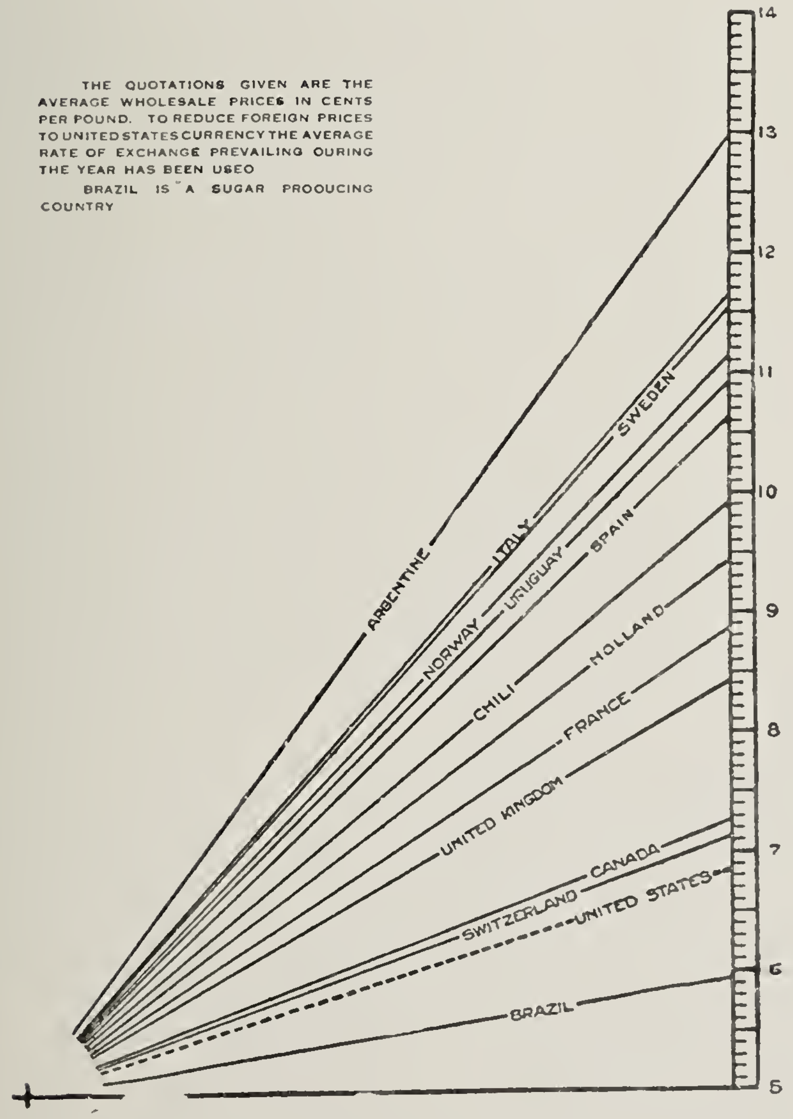
And so all my days are days of trouble and fear, that I do not the things which he commands, though I can see in them no reason or good at all. All these things vexeth me much, for from my tormentor I can find no relief; for it seemeth that he shall follow me all the days of my life. Selah!

City of Chicago, Department of Health, April, 1917.

Sugar Refining at 4½% Profit.

In the annual report of President Earl D. Babst of the American Sugar Refining Company appear the following significant paragraphs having to do with the economic value of large unit production:

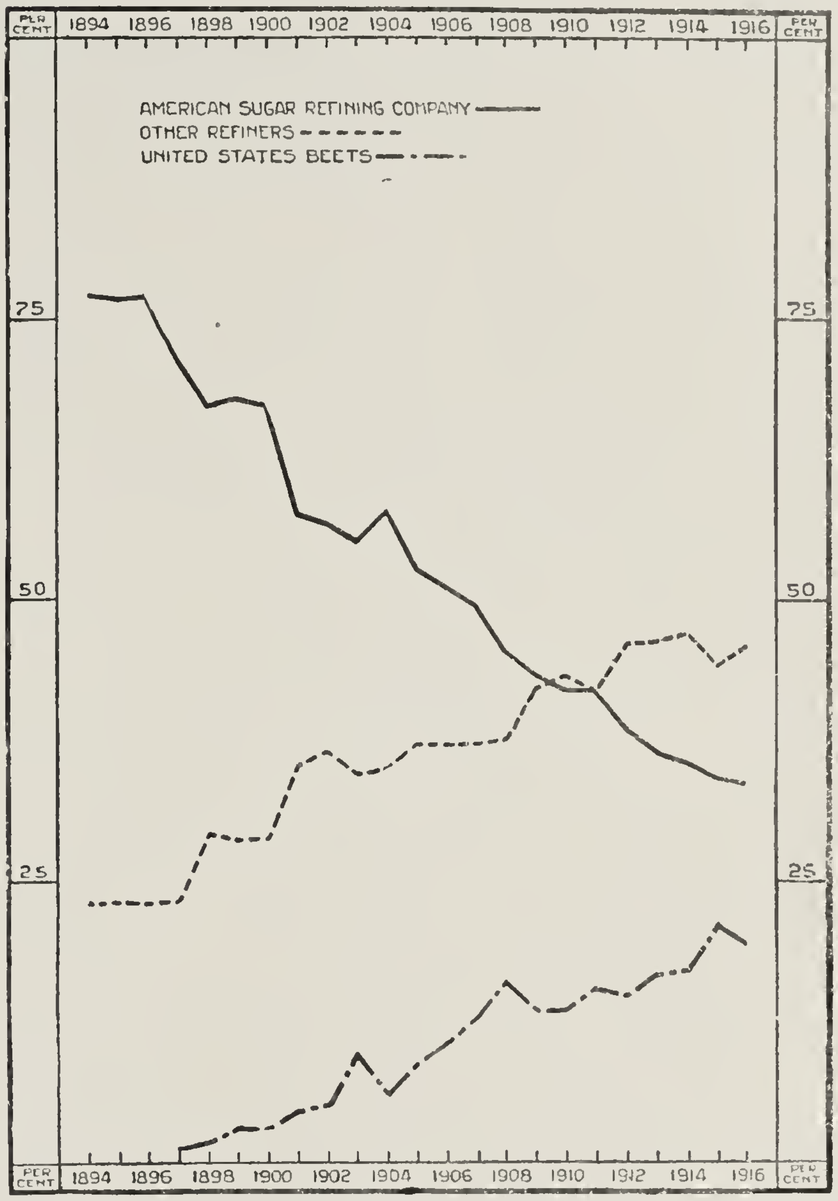
A COMPARISON OF PRICES FOR REFINED SUGAR IN THE UNITED STATES AND FOREIGN COUNTRIES DURING 1916


THE QUOTATIONS GIVEN ARE THE AVERAGE WHOLESALE PRICES IN CENTS PER POUND. TO REDUCE FOREIGN PRICES TO UNITED STATES CURRENCY THE AVERAGE RATE OF EXCHANGE PREVAILING DURING THE YEAR HAS BEEN USED
BRAZIL IS A SUGAR PRODUCING COUNTRY

"The general prosperity of the country has developed a buying power which has overcome somewhat the usual tendency of high prices to check consumption. With the addition of the larger export business and the uninterrupted operation of Chalmette Refinery, the volume of the Company's business was larger than for many years.

"Notwithstanding the greatly increased cost of refining and of packing materials, the larger volume of business, materially aided by the increasing value of inventory and of by-products, resulted in a more satisfactory manufacturing profit than reported in several years. The profits from our large exports of sugar and syrup have contributed substantially to the result.

CHART SHOWING PROPORTION OF ANNUAL SUGAR CONSUMPTION IN THE UNITED STATES SUPPLIED BY AMERICAN SUGAR REFINING COMPANY AND OTHER SOURCES (WILLETT AND GRAY)



"The turnover of the Company amounted approximately to $200,000,000, so that the manufacturing profit amounted to about 4½%. In other words, the Company made a manufacturing profit of 4½ cents on each dollar of its turnover, a profit far below that ordinarily obtaining in manufacturing enterprises, and made possible only by manufacturing upon a large scale and by the continuous operation of its refineries."

Rulings on Canners' Labels.

In response to inquiries by the National Canners' Association, the Bureau of Chemistry of the Department of Agriculture has given the following opinions. The bureau recognizes the California and Mexican pink bean as a distinct variety, and designating it as a red bean would be misleading in that it would tend to confuse it with the ordinary kidney bean. The bureau directs that soaked peas and beans must be so labeled, and the word "soaked" must not be obscured by other matter on the label. American sardines should be labeled "American" or "Maine" or some similar appellation, the use of the expression "Native Sardines" not being considered sufficiently definite. Fish of the genus *Gymnosarda* may be labeled "striped tuna," but not "little tuna" or "little tunny." They may not be labeled "bonita tuna" or "ocean Bonito," as the true bonito is not a tuna or striped tuna but a different fish belonging to the genus *Sarda*. Fish of this genus may not be labeled "tuna" or "tunny" under any circumstances.

Vegetable Oils for the American Market.

The demand for the oils suitable for salad dressings and general food purposes has increased so rapidly in recent years that, according to an article in the 1916 Yearbook of the U. S. Department of Agriculture, the consumption is now many times greater than the production of olive oil, which formerly was the chief product used for this purpose. In the United States cottonseed, coconut, and peanut oils are being used extensively. Corn oil is beginning to appear in the retail market and it is probable that sooner or later numerous other oils in more or less general use in foreign countries, such as the sunflower, the soy bean, poppy seed, and sesame, will become more common in this country.

Food oils, like other culinary and table fats, are valuable sources of energy to the body, and it is for this reason that we regard fats, and rightly, as very important foodstuffs. The food oils are well assimilated, the question of which one is to be preferred for domestic use being largely a matter of individual taste and relative price.

OLIVE OIL.

Although large quantities of olive oil are imported into the United States, the American product is of high quality and commands a good price. The demand for pickled olives, however, is so great that it pays better in general to use the fruit in this way instead of crushing it for oil. Furthermore, the American olives are not so rich in oil as the Italian. Many of the varieties grown in southern Europe contain between 40 and 60 per cent of oil and in this country usually less than 30 per cent is obtained.

COTTONSEED OIL.

On the other hand, the United States produces by far the greater part of the cottonseed oil the world consumes. This product is in nearly every respect a satisfactory substitute for olive oil. At the present time the United States produces about three million barrels of this oil and exports about 700,000 barrels. The process of manufacturing the finer grades of cottonseed oil is described in detail in the article already mentioned. It is noteworthy that this process is much more complicated than the one employed for the manufacture of olive oil. The finest grades of the latter are those which are expressed from the fruit with the least possible subsequent treatment. On the other hand, for cottonseed oil to be made suitable for human food, it must be refined and, in addition, it is often desirable to bleach and deodorize it. The yield of oil is usually less than 17 per cent of the weight of seed handled and, in consequence, there is a large residue of cake and hulls. This material is valuable as feed or fertilizer and can often be disposed of to the local farmers. For this reason crude cottonseed oil mills are often located in small towns throughout the cotton-growing sections. The crude oil is shipped from these mills to southern refineries or the packing houses of the north. After treatment in these establishments, the cloudy, dark red, crude product, which not infrequently is strong and rancid tasting, is transformed into a clear, light yellow, bland, and almost tasteless oil, which is very desirable for those who do not care for a marked flavor in their salad dressings or for the lard taste in their pastry.

PEANUT OIL.

Another oil now rapidly coming into prominence is made from the peanut. This industry is especially promising for those districts of the south in which the boll weevil has made the raising of cotton uncertain. This pest in some sections has decreased the production of cotton to such an extent that the local oil mills have been compelled to seek some material other than cotton seed for their operations. The peanut not only furnishes this material, but its hay and press cake make highly desirable cattle feeds. Although its manufacture is comparatively new in this country, peanut oil has long been consumed in large quantities elsewhere. In Europe the finest grades of this product are used exclusively for edible purposes, and the tremendous production in France—that in Marseilles alone being about 15,500,000 gallons annually—is practically all consumed abroad. Very little, if any, of the highest-grade peanut oils are exported from Europe to the United States. Hitherto the American product has suffered from a lack of uniformity and from the use of all kinds of stock. The best oil is what is known as cold-drawn. This oil comes from the mill sweet and brilliant and ready for table use. It has a pleasant nutty taste and needs no refining, provided, of course, the original material was clean and free from rancid nuts. On the other hand, peanut oils made from inferior material can be refined and the disagreeable odor and flavor removed, but such oils lack the characteristic taste of the higher grade product. At the present time high-grade peanut oil is not well known in the United States, though the use of the better sorts on the market is growing. Many persons have become accustomed to peanut oil and like it, as might be expected, for it is a very palatable food oil when of good quality. The slow recognition of the merits of such a product is not surprising, because it frequently takes a long time for an unfamiliar food to become established in popular favor. For instance, it was some years before grapefruit, the consumption of which is now enormous, came into general use.

CORN OIL.

Quite recently corn oil has attracted some attention. This is derived from the small germ portion of our common Indian corn. In the preparation of cornstarch and brewer's grits, and sometimes in the case of other corn products, the germ is more or less completely separated from the rest of the grain. It is only in such cases that it is possible to make corn oil on a commercial scale, for otherwise the cost of extracting it would be too great. As yet, corn oil is not a common household product, but it is now being placed upon the market in small retail packages. Methods for making it sweet and attractive have been perfected and the manufacturers of edible fats are using increasing amounts in making lard substitutes.

Reduced Production of Corn in Argentina.

The Division of Rural Economy and Agricultural Statistics on March 14 informed the Minister of Agriculture, after making a careful survey of the country, that the corn crop for the year 1916-17 will fall far below that of normal years, due largely to the excessive drought during the early part of the season and the extensive damages done by locusts.

The official estimates place the total area planted to corn at 8,968,824 acres, or 959,463 acres less than during the year 1915-16. Of this, 3,281,789 acres are reported to be a total loss, and the remaining 5,687,035 acres will produce a yield considerably below that obtained in normal times. The total production, in metric tons (1 metric ton equals 2,204.6 pounds), would be 1,523,000 tons. The estimated production of corn for the previous year (1915-16) was 4,093,000 tons.

The Division of Rural Economy and Agricultural Statistics estimates that the annual domestic consumption of corn amounts to 1,680,700 tons. The present crop, therefore, will hardly serve to supply this demand. However, this division reports that there is an appreciable stock of corn from the former crops on hand, which will supply the deficiency in the domestic production this year, besides leaving some for export.—*Commerce Reports.*

Argentina Puts Embargo on Wheat.

On March 26 the President of Argentina issued a decree prohibiting the export of wheat from Argentine ports, according to Consul General Robertson of Buenos Aires, in the *Commerce Reports.* The decree took effect March 28. According to the estimate of the Argentine Bureau of Statistics and Rural Economy, made the first of the year, the total production of 1916-17 crop, with the stock on hand, totaled 2,756,320 metric tons, which was calculated to leave an available surplus for export of 956,320 tons. Since the first of the year, at least 500,000 tons have been exported, and recently the Minister of Agriculture announced that the present surplus only amounts to something between 60,000 and 125,000 tons. There seems to be a great difference of opinion among the experts as to just how much surplus there really is, and it is possible to find authority for any figure from 60,000 to 450,000 tons.

Care of Confectionery

By Walter C. Hughes,
Secretary, National Confectioners' Association.

This is the second of a series of six articles which is being published monthly relative to the above subject. The first dealt with the subject in a general way; this, the second, deals with Chocolates and Chocolate Confections; third, Hard Boiled Candies; fourth, Nut Candies; fifth, Marshmallow, Fudges and some other special kinds; and the sixth will be a general summary of the entire subject with suggestions relative thereto.

THE enormous increase in the consumption of chocolate during the past few years, and the constantly increasing popularity of the "Food of the Gods," as it has been called, demonstrates the fact that chocolate is not only a very pleasant tasting sweetmeat, but that it is also a tempting food product, very high in food value. In his book on "Physiologie de Goût," Prielat Savarin summarizes his estimate of the value of chocolate as a food product as follows:

> *"The persons who habitually take chocolate are those who enjoy the most equable and constant health and are less liable to a multiude of illnesses which spoil the enjoyment of life."*

Chocolates and chocolate confections are easily our most popular confections and should, therefore, be given as intelligent and discriminating care and attention as any other perishable and valuable food product. The food value of chocolate, compared with some of the most valuable foods, shows that for a given quantity, it has almost four times the value of lean beef, twice the value of white bread and seven times the value of whole milk.

Meats, butter, cheese, milk, fruits, vegetables and many other kinds of food products require special care and attention, especially during the Summer months. Promiscuous display of these foods, without any special arrangements for keeping them in a clean, wholesome, good condition would be quickly condemned by the consumer. The consumer has been educated to demand pure, clean, wholesome food and the intelligent retail grocer or meat market proprietor knows that his best business asset is a clean store with adequate show cases and refrigerators to properly display and protect the food that he is selling.

All kinds of chocolate confections are very sensitive to changes in temperature and should be kept in a cool, dry place where the temperature is as even as possible. In the Summer time chocolates should be kept where the temperature is never above 85° F. and never below 70° F. If kept in a display refrigerator in a lower temperature than 70° F., they will sweat when taken into the temperature of the outside atmosphere, by the consumer. The cocoa butter in chocolate coatings has a lower melting point than the sugar and other ingredients of the chocolates, and if subjected to excessive heat, melts and runs through the coating, causing the chocolates to have a gray appearance. The quality is not necessarily affected by the change in appearance. The consumer, however, invariably associates gray appearance with stale quality and concludes that they are old and stale because they are gray.

Display refrigerators in various styles, suitable for packages and for bulk goods, can be purchased at cost from many of the prominent manufacturers of chocolates. Unfortunately the retailers who really need them the most, seldom have them. They are beautifully designed and make a very attractive addition to the appearance of the retailer's store. Regardless of the expense of maintenance, which is not great, and of the original cost, a display refrigerator is a very practical investment for the retailer, both from an economical and artistic viewpoint and will easily pay for itself in one season by keeping chocolates in good, salable condition and preventing losses that would be sure to occur without it. They should be used all the year around. In the winter time when the store is artificially heated, either by a heating plant or a stove, the temperature will vary considerably. The uniform temperature of a display refrigerator will keep chocolates in a very good condition, both winter and summer. A display refrigerator should occasionally be thoroughly aired and cleaned frequently, both inside and out.

In the smaller retail candy stores, where the installation of a display refrigerator would perhaps not be advisable, on account of the size and diversity of the stock, satisfactory cooling devices can be arranged with little expense. There are several mechanical cooling devices which can be placed in ordinary showcases and which are inexpensive and very satisfactory. A simple, practical method for keeping down the temperature in the showcases and which can be used by the smallest retail stores, is to take a glass jar that has a ground glass stopper, and fill it with cracked ice. Put the jar in a glass tray or dish to collect the moisture caused from the sweating of the jar, and place it inside the show case. A five-pound glass jar, filled with ice, and placed in an ordinary show case, will lower the temperature of the air in the case sufficiently to keep the chocolates in good condition and not lower it to such an extent as to make the show case become blurred with the condensation of the moisture in the air. An electric fan will create a circulation of air in the show case and keep down the temperature even on the warmest days and assist very materially in keeping the chocolates in good condition.

Special care and attention is necessary, particularly with all chocolates or chocolate confections containing nut meats, especially during the summer months. These should always be kept in a cool temperature. Chocolates should not be kept in an ice chest or in a damp place. Dampness is as injurious to the keeping quality of chocolates as high temperature. In the winter time, care should be used in keeping chocolates away from the immediate vicinity of the stove or radiators, with which the store is heated. There should not be too much difference in the temperature of the store at night, compared with the day time. Keep as uniform a temperature as possible in store both night and day. Do not shut up the store and provide no ventilation.

Ventilate your store thoroughly both winter and summer. A change of atmosphere is necessary both for your comfort and the care of your stock. In the Summer arrange the store so that it will be well ventilated over night; the cool night air will help to keep a lower temperature during the day. If the store is closed up tightly without any ventilation, the temperature will be very much higher and will be ruinous to your stock. Care should be used to keep boxes of chocolates away from walls, especially brick walls. The moisture in certain localities near the seashore, or, where there is a great deal of humidity in the air, will cause the chocolates to become mouldy. Cocoa butter in chocolate coatings is very susceptible to odors and chocolates, therefore, should be carefully kept away from the vicinity of any article that has a distinctive odor, such as drugs or cigars. The odor will usually be absorbed and destroy the delicate flavor of the chocolates.

It is always advisable to order chocolates in comparatively small quantities and by so doing, you will always have a fresh stock. Do not overstock. I know of an instance where a retailer made it a practice to purchase his stock of fine chocolates only twice during the year. Undoubtedly 50 per cent of his stock was stale all the time and he wondered why his sales never increased. It is a good plan to mark the packages with the day they are received. This will enable the retailer to sell the oldest stock first and avoid having any stale goods, which have been pushed to one side and overlooked.

Chocolates will keep in good condition for several months if given proper care and attention. Chocolates which have been kept in stock ten days or two weeks are better eating than those which are fresh made. If too fresh, the centers will not have had time to ripen or develop, and they will not have the velvety smoothness of ripened creams. High grade creams require at least a week to ripen. Very few retailers and consumers know this. Sometimes chocolates are returned to the retailer by consumers, who think they are stale because the centers are firm and not soft and creamy. Frequently, in such cases, the chocolates are too fresh. The cream centers have not had time to develop and ripen properly.

Sometimes the customer, when purchasing, does not specify that soft, creamy centers are wanted and is sold chocolates with caramel, nuts or other hard centers. Care should always be used in finding out just what kind of centers and flavors the customer prefers. Use the same intelligence and good salesmanship in selling candy as would be used by a good salesman selling any other commodity. Find out what the customer wants and help him to select what he wants.

Keep the store darkened in the summer time, but not dark; lower the shades, especially if you have a soda fountain; a darkened, cool store will be a great deal more attractive than a store where the sun has been heating up the temperature without hindrance. Do not display packages of chocolates in show windows where the sun shines on them. The temperature in the show window is always much higher than that of the store, unless special arrangements have been made to ventilate and lower the temperature in the show window.

When a shipment leaves the manufacturer, careful and efficient inspection systems used by all prominent manufacturers, insure that the chocolates are in good condition before leaving the factory. In transit a shipment may have been placed near a stove or in a place where it is damp or where the sun would shine on it. It is, therefore, advisable, as soon as you receive a shipment, to open the packing case and make a careful inspection of all the packages, if that can be done without injury to the packages. In this way, you will ascertain whether there is any damage and can then immediately refer the same to the manufacturer. By so doing, misunderstandings will frequently be avoided, between the manufacturer and yourself, on account of damage, not due to any fault in manufacturing, not being reported until some time after the chocolates are received.

Do not place chocolates on the floor of the store. Have shelves or convenient places to store them in. There is nothing that so detracts from the appearance of a retailer's store as packages of chocolates in a show window that are dull and faded, with faded, dusty, bedraggled ribbons. Use only dummy packages and very few of them. Protect them from the direct rays of the sun and change frequently. Wash the windows frequently and keep the display packages in the windows neat and clean. A show window is a good investment, if neat and clean and properly arranged, but if not, it might better have the curtain drawn and be kept out of sight.

The Pellagra Puzzle Solved?

NOT many months ago Dr. E. M. Perdue of Kansas City published a book* on pellagra the opening paragraph of which states that *"pellagra is a disease strictly localized and contracted in a determinate zone where water is constantly drunk which originates in an argillaceous terrain, or flows through or stands on an argillaceous terrain,"* the disease itself being defined as one *"caused by forced retention of mineral salts, to which succeeds an excessive liberation of acids, with respect to what is considered as normal for the determinate organism, or pellagra is none other than a mineral acidosis with all its consequences."*

Dr. Perdue's book is in part *(about 250 pages)* a translation from the Italian of a record of work done at the Institute of Experimental Hygiene of the University of Rome by Professors Giulio Allesandrini and Alberto Scala, and in part *(about 112 pages)* original matter linking up with American conditions the findings of the Italian scientists.

Professors Allesandrini and Scala conducted elaborate research work from 1909 to 1914 designed to determine the truth or falsity of their hypothesis that pellagra is caused by nothing more mysterious than too much silica in drinking water. They then published a monograph entitled "A New Contribution to the Etiology and Pathogenesis of Pallagra," which forms the major part of the book under discussion. The monograph of the two Italian investigators is in the main a transcript of their joint note-book descriptive of their experiments. All of their conclusions are purely inductive, which fact alone entitles them to the serious consideration of everyone interested in the dread disease at present so much in the public mind.

Bearing in mind that Dr. Perdue is firmly of the belief that the puzzle of pellagra's source has been solved, his general summarization as to the cause of pellagra is of sufficient general interest to warrant quoting *in extenso.*

"The cause of pellagra has long been a subject of controversy. The reasons for the difference of opinion lie in the methods of research. For many years it has been the custom in the investigation of diseases of unknown origin, to formulate a hypothesis of the origin or etiology of a given disease to be investigated. In this way many able investigators have become partisans of their hypotheses, and instead of a true investigation of the diseases from the bedside study of the clinically obvious, they have sought data to establish their hypotheses. Pellagra is one of the most conspicuous examples of this condition of research. Even now, after the cause, prevention and treatment of pellagra have been scientifically established, the rivalry between the advocates of disproven hypotheses is as keen as ever.

"The most prominent theory of the cause of pellagra is the eating of corn meal. Some have insisted that corn was an unbalanced diet and that toxic conditions were created thereby. Others have insisted that the cause was spoiled corn meal. More work has been done, more effort spent to prove that pellagra is caused by spoiled corn, than has been spent on any other theory. This theory seems to have arisen soon after the discovery of the disease. It seems to have been held for some time and was formulated about 1810 by Marzari. Marzari thought that corn was deficient in certain nutritive principles. Balardini insisted that the disease was due not to good corn but to moldy corn, and accused a certain green mold sometimes found on corn. Lombroso took up this theory and is largely responsible for its wide acceptance.

"However, the strongest advocates of the corn or maize theories have always fallen short of actually proving any direct relation between the maize (Italian granoturco) diet and pellagra. Others have strenuously insisted that there are regions where pellagra is found where maize is not eaten, and that there are other regions where maize is the principal cereal diet and where pellagra does not exist. We might indulge in an extensive discussion of the elaboration of this theory, epecially by Lombroso, but as the theory failed of establishment, it is now only of historic interest in a discussion of pellagra.

"Another prominent theory is that pellagra is a parasitic disease carried or transmitted by some blood-sucking insect. This theory dates from 1905, is about ten years old, and was first announced by Sambon. Sambon has not fixed upon the parasite; this is still hypothetical. But he has decided that the carrier is some species of the simulium fly or so-called "buffalo gnat." * * * While Sambon is still in the active advocacy of this theory, it must go the way of all hypotheses not founded on fact.

"In 1910, Allesandrini of the Institute of Experimental

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*Pellagra, Allesandrini, Scala and Perdue, $3. Burton Publishing Co., Kansas City, Mo.

Hygiene of the University of Rome, suggested that pellagra might be caused by certain filaridae, a species of nematode worm. He only published a preliminary note. Further investigation convinced him of his mistake, and about two years afterward in collaboration with Scala of the same institute, he announced the true cause of pellagra.

"In 1909 and 1910, Siler and Nichols, Long and Young suggested that pellagra was a form of amebiasis. Pellagra is prevalent in countries where the intestinal tract is often infested with ameba. The intestinal disturbances of pellagra suggested an analogy.

"Another theory is that the use of cottonseed oil instead of lard may be a cause.

"The latest theory, and one equally untenable with all the others, is the lack of proteids in the diet. It is stated that pellagra is a disease of the poor and poorly nourished. That in a well balanced and nutritious diet lies the prevention of pellagra. However, all of these theories fall before the true cause of pellagra."

And somewhat further along in the same chapter Dr. Perdue remarks that "Although the toxicology of silica had been worked out and published seventy-five years ago or more, and pellagra was confined to those regions of the earth where the water supply was derived from clay soils, and the symptomatology of pellagra and chronic intoxication with silica are identical, all these facts, together with those given immediately above, seem to have been overlooked," summing up with the following paragraphs:

"According to Alessandrini and Scala the following are the facts as to the etiology of pellagra.

"Pellagra is a chronic acid intoxication caused by colloidal silica in the water supply.

"Pellagra is strictly localized and contracted in those regions where the water supply is derived from clay soils.

"It is the silica in suspension or in colloidal solution in these water supplies, taken daily with the drinking water in very small amounts by the people drinking such a water for many years which is the cause of this dreadful disease. It is no fault of the people; it is not because they are unsanitary, or poor, or hard at work, or live in luxury. It has no relation to flies or gnats or mosquitoes; nor to corn meal, or cottonseed oil or diet. It is not a matter of abstruse research, or bacteriology, or serums, or toxins or antitoxins. It is just a simple matter of drinking 'soft,' or 'freestone' water in a clay country."

When describing the physiological effect of ingested silica Dr. Perdue explains that "When colloidal silica is taken into the human system in drinking water it is absorbed and enters into combination with the proteid substance of the tissue cells. However, it does not stop here. It acts much like an enzyme, that is, the combination is only a step in the process of uniting or fixing salts in the tissue cells. When the tissue cells have combined with the silica they are then in a condition to make a new combination with the salts and alkalies. This combination is made, the salts fixed in the cells and the silica again set free.

"The silica again goes through the cycle of attaching to proteid substances and fixing salts in the cells. So with the continued ingestion of silica and the setting free of the silica already in the body to go through the cycle again, it can readily be seen that the action of silica is cumulative.

"Now every time that silica is able to attach a salt to a cell or to protoplasmic substance it frees water and the acid which formed the salt. Since hydrochloric acid is the most common acid in the combinations of the salts of the body, it is the acid most commonly set free by the action of the silica.

"The abstraction of water results in the drying of the tissues so marked in pellagra. The freeing of the acids is the cause of the acid taste, the burning, and the skin manifestations of the disease called pellagra.

"The fixing of the salts in the tissues causes them to be very low in the urine, until there is an accumulation in the tissues so great that it can no longer be tolerated. Then for a time there is a larger excretion of chlorids and phosfates in the urine. When the great excess has been eliminated, there is a return to the accumulation above the normal.

"The normal condition of the human body is an alkalinity of 0.85% when measured by a solution of sodium chlorid. When this alkalinity is decreased by the liberation of an excess of acid, there is a tendency to ulceration. This is the condition of the whole intestinal tract in pellagra.

"The withdrawal of water has a marked effect on the nervous system. As in all drying processes, there is first excitement and hyperesthesia, followed as the drying progresses, by incoordination and paralysis. The same thing takes place in alcohol intoxication."

The author touches upon sporadic individual immunity to pellagra in the following manner:

"All the principles of natural resistance and predisposition apply in the matter of contracting such a disease as pellagra or in being immune therefrom. In persons of vigorous constitution who eliminate readily, the intoxication may never have serious manifestations. . . . People of less active physiology, diminished resistance, those who are worried and troubled so that the processes of nutrition and elimination are deranged, are liable to the intoxication if they drink a soft water high in silica. So in answer to the question or criticism as to why only a few persons in a pellagrous area contract the disease, it is proper to say that the same factors of immunity and individual resistance, individual weaknesses, failure of elimination of poisons and individual susceptibility, apply in the case of pellagra just as they apply in the contraction of or immunity to any other disease."

As to the prevention of pellagra, the following advice is given:

"Since pellagra is a chronic acidosis caused by the ingestion of colloidal silica, its prevention consists in providing a drinking water of the proper alkalinity. . . . In order to avoid having pellagra drink hard or limestone water. . . .

"Now if the spring or well from which a supply of domestic drinking water is drawn is in a soft water district, or the water is a 'freestone' water, it will be necessary to make it a 'hard' or 'limestone' water. The best way to do this is to excavate a considerable reservoir for the spring and wall it with limestone laid in a rich Portland cement mortar. Then take a good quality of limestone broken to about two-inch sizes and put it in the bottom of the spring six inches to a foot thick. Do not permit any clay to collect in the spring. Wells should be walled the same way and the bottom covered with a foot of broken limestone. Clay should not be permitted to collect in the bottom or to wash in from the top. The stirring up of a clay bottom in springs or wells contributes to the pellagrogenic character of the water.

"If the water supplies to a town or city are soft or freestone water, all reservoirs should be walled with Portland cement concrete made of broken limestone. The bottoms of such reservoirs should be covered with at least a foot of broken limestone. Filter beds should contain a large proportion of limestone sands from crusher screenings. A live caustic alkalinity should be added in the form of lime water or calcium hydrate in the treatment of the raw water. Daily chemical tests by simple and well known titration methods would insure a safe alkalinity at all times.

"For persons to whom these simple measures of prevention are impractical, the treatment of drinking water with lime is suggested. Take about a tablespoonful of lime and place in an ordinary bucketful of water. Stir and mix thoroughly and permit to settle. Pour off the lime water if too strong, and dilute it with more water. The remaining lime in the bucket can be treated with more water. When both buckets of water are pleasant to the taste they will be so alkaline as to prevent pellagra."

The treatment of those suffering from pellagra as devised by Alessandrini and Scala and as recommended by Dr. Perdue consists in the neutralization of the silica by sodium citrate which, in the body, becomes sodium carbonate. It can be administered either hypodermically or by the mouth, although when employing the latter method much more of the medicine must be given. Effort is also made to eliminate the poison already in the system, to build up the depleted organism and, in some cases, to treat the symptomatic manifestations.

Food Reviews

NUT MARGARINE, COCONUT BRAND. Manufactured by The Nucoa Butter Co., 10 Bridge St., New York City, factory at Soho Park, N. J. Price, in cartons, about 32c. Packed in one, two and five-pound prints.

Nut Margarine is a butter substitute which is made by churning coconut oil and a small proportion of peanut oil, with pasteurized cultured milk. Although sold as oleomargarine for legal reasons, it is an essentially different product from margarine made from animal fats.

Coconut oil is manufactured in this country by pressing it from the dried meat of the coconut; the product known as copra. It is generally imported from the Philippine Islands and Ceylon. In temperate climates coconut oil is a soft white solid of appetizing appearance. It resembles butter in some of its chemical characteristics more nearly than any other fat.

Peanut oil is imported from France and Holland. The best grades of the oil are pressed cold from the African peanut, and subsequent pressings with heat yield an inferior quality of oil which is used in the industries. The American peanut, while of superior quality for eating purposes, does not yield as much oil as the true African peanut. Peanut oil has a very mild distinctive flavor, and is preferred to olive oil by many people.

Nut Margarine, as it comes from the churns, is worked and salted in exactly the same manner as creamery butter. The finished product is white. With each carton a capsule of butter color is enclosed, with instructions for coloring the margarine if a yellow color is desired. Nut Margarine is much better known in Europe than in this country. It is said that one churner of nut margarine, in England, turns out more than all the oleomargarine manufacturers in the United States combined. The industry was also firmly established in Germany before the war.

DYER'S PORK AND BEANS.—Packed by Dyer Packing Co., Vincennes, Indiana, exclusive packers of pork and beans, kidney beans and catsup. Price, in tin, 15c.

This product consists of a mixture of navy and soja beans, flavored with pork and tomato sauce. The soja beans are used in a proportion of 30 per cent to 70 per cent of navy beans. Soja beans are also called soy beans.

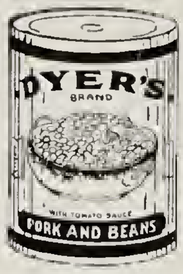
Although soja beans, mixed with navy beans, have been on the market, in a small way, for some time, the Dyer Packing Co. is the first to push their sale in an aggressive manner, and to present to the consumer, in a large way, the remarkable nutritive qualities of this food. As an evidence of its ready reception it is interesting to note that in the six months following its introduction the pork and bean sales of the company have more than doubled.

CHEMICAL ANALYSIS OF DYER'S PORK AND BEANS.

	Navy Beans.[1]	Soja Beans.[1]	Dyer's Beans.[2]
Moisture *per cent*........	12.6	10.8	12.1
Protein *per cent*.........	22.5	34.0	26.0
Fat *per cent*.............	1.8	16.8	6.3
Ash *per cent*.............	3.5	4.7	3.8
Carbohydrates *per cent*...	59.6	33.7	51.8
Fuel value per lb., *calories*	1605	1970	1715

Owing to the relatively high amount of protein and fat in the soja bean, Dyer's beans are a much better balanced food than are navy beans alone. By the addition of the soja beans, the proportion of these two elements is materially increased, the moisture and ash content are only slightly altered, and the carbohydrates are somewhat reduced.

In China and Japan,[3] the soja bean largely takes the place of meat as an adjunct to rice. The cell walls of the raw bean are very tough, and thorough cooking is required to make it fully digestible; a fact which gives the packer an advantage over the housewife in preparing it. In the Orient it is most popular in fermented form, and from it are made Soy sauce, an important ingredient of Worcestershire Sauce, Tofu, a kind of cheese, Soja bean "milk," a condensed form of the same milk, and Matto, which is the boiled bean fermented.



Dr. William A. Evans, president of the American Public Health Association, says, in regard to the food value of the soja bean, "Soja bean meal contains nearly 45 per cent protein and nearly 20 per cent oil. Compare this with the analysis of round steak—protein 20 per cent, fat 14 per cent. For the man who does hard manual labor, burns up a lot of tissue, and who, therefore, needs a lot of protein, soja meal is as good as steak. While per cent for per cent the protein of soja meal is not the equal of steak, the difference between 45 and 20 per cent is more than enough to compensate. Its use as an ingredient of pork and beans is logical. However, it does not supply all the carbohydrates needed. Either soja beans should be mixed with navy beans, corn field peas, or other beans, or else bread should be eaten with the pork and beans."

On account of the very low amount of starch in soja bean meal, its use has been advocated in the diet of diabetics. A soja meal gruel is sometimes fed to babies who cannot digest either mother's milk or cow's milk.

In the United States government estimate contained in Special Bulletin No. 121 issued by the Department of Agriculture, soja beans are credited with 50 per cent more protein than navy beans or lean beef, two and a half times as much as eggs, and ten times as much as milk. Of fat they contain over 50 per cent more than eggs, more than twice as much as lean beef, and about four times as much as milk. Their fuel value per pound is more than wheat flour, and almost three times that of lean beef or eggs.

The flavor of Dyer's pork and beans is excellent, and not markedly different from high grade pork and navy beans alone. On the whole, the slogan, "Better Beans at Lower Cost," seems to be amply justified.

India's Record Rice Crop.

The final official forecast of the rice crop of India for the 1916-17 season, based on returns from provinces that contain 99 per cent of the total area under this cereal in British India, shows an acreage of 79,700,000, which is 2 per cent larger than the revised figure (78,152,000 acres) of last year The total estimated yield is 34,079,000 long tons of cleaned rice, or 4 per cent more than the revised figure (32,824,000 tons) for 1915-16. The present estimates of both area and yield, says the Department of Commerce in quoting the *Indian Trade Journal,* are the highest on record.

Output of Crude Sugar in Formosa.

It is officially estimated that the crude-sugar output of the several producing companies of Taiwan (Formosa) for the season ending in May, 1917, will be: Taiwan Sugar Manufacturing Co., 190,190,000 pounds; Yensuiko Co., 113,050,000; Dai Nippon Co., 81,130,000; Teikoku Co., 66,500,000; Meiji Co., 109,060,000; Toyo Co., 130,340,000; Niitaka Co., 62,510,000; Rin Hon Gen Co., 35,910,000; Tainan Co., 8,645,000; Shinko Co., 11,305,000; Taito Co., 5,985,000; total, 814,625,000 pounds. Last year's production amounted to 463,261,864 pounds. About 90 per cent of Taiwan's sugar is exported to Japan and there refined.—Consul M. D. Kirjassoff, Taihoku, Taiwan.

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[1] U. S. Department of Agriculture Farmers Bulletin No. 121 (1906).

[2] These numbers are derived arithmetically from the government's analysis, the mixture being 70% navy beans and 30% soja beans.

[3] The Encyclopedia of Foods and Beverages.

Book Reviews

FEEDING THE FAMILY.—By Mary Schwartz Rose, Ph. D., Assistant Professor, Department of Nutrition, Teachers' College, Columbia University. Macmillan Company, New York City. 449 pages. Illustrated. $2.10.

If every woman who is at the present moment knitting a scarf for some unknown French soldier in the trenches of Normandy should drop her knitting needle instanter and spend the next few days in a careful study of Mrs. Rose's *Feeding the Family* she would be doing her bit for America in far more practical fashion. At the present critical juncture of affairs gastronomic, the most highly patriotic act possible to any American housewife is to purchase, read, and act upon *Feeding the Family*. The book has been mentioned before in these columns. In a word, it supplies in interesting, simple form what every woman should know about food. Unfortunately not every woman knows many of the things about food that she should know. As a matter of fact, probably no other preparedness measure of equally vital importance to a nation going to war is so badly handled as is this subject of feeding the family. Secretary Houston claims that the housewife throws about $700,000,000 worth of food into the garbage can each year. The money loss, apart from wastage, due to crass ignorance of food values on the part of the housewife is simply beyond calculation. Intelligent use of books such as *Feeding the Family* will help remedy matters. No better nor more timely advice to the women of America can be given than this: drop your knitting needles and become intelligently posted as to the housewife's first duty—feeding the family. It's not half so romantic as making a scarf for some *poilu* in Normandy—but it's much better sense.

FOOD PRODUCTS.—By Henry C. Sherman, Ph.D., Professor of Food Chemistry, Columbia University. The Macmillan Company, New York City. 594 pages. Illustrated. $2.25.

One of the best American books on food is the well-known work by Dr. Henry C. Sherman entitled *Food Products*. It was published in 1914, the present edition having been printed in 1916. Among dietitians this book is generally recognized as the best single work of reference extant. It is sound scientifically and technically and is both well written and illustrated. The author is professor of food chemistry at Columbia University. In this work he has devoted about 20 pages to a brief statement of the functions of food, about 80 pages to the legal control of food, and the balance of the book to discussions of various foods. It is not a book of recipes nor of specific recommendations for balanced meals—although such data can easily be worked out from its text matter by anyone so minded. For those who want a work a bit more fundamental than is the average title on dietetics and yet do not relish the abstruseness of the typical book of reference, Dr. Sherman's work can be confidently recommended.

MANUAL FOR THE ESSENCE INDUSTRY.—By Erich Walter, Specialist in the Beverage Industry. John Wiley & Sons, Inc., New York, N. Y. 427 pp. $4.

A particularly timely book and one which should be of interest to the brewing fraternity is this *Manual for the Essence Industry*. It comprises full descriptions of the most modern methods for the making of all kinds of essences for liquors, brandies, liqueurs and non-alcoholic beverages including mineral waters, fruit juices and essences for effervescent lemonades as well as fruit wines and jams. Also, it describes the manufacture of coloring matter for foods and drinks and confectionery and culinary essences of all kinds. The manufacture of essences used in cosmetics, soaps and perfumes is also described. Full descriptions of raw materials are included and there is a chapter devoted to laboratory practice. The spread of prohibition will undoubtedly usher in a greatly increased use of non-alcoholic beverages, commonly known as "soft drinks." This book is sufficiently full to enable the brewer to reconstruct his plant in such fashion as to permit him to enter the beverage industry under most favorable circumstances.

WHAT TO EAT AND WHY.—By G. Carroll Smith, M. D., of Boston, Mass. Second edition, thoroughly revised. Octavo of 377 pages. Philadelphia and London; W. B. Saunders Company, 1915. Cloth, $2.50 net.

This book was written for the express purpose of simplifying the art of treating disease by means of the diet given the patient. While in college every embryo doctor is, of course, told that "we are what we eat." As practitioners, far too many physicians forget this simple axiom and treat symptoms rather than causes. Dr. Smith would have the physician regard dietetic methods as seriously as he does those methods which employ drugs, serums, electricity or other remedial agencies. This is not a cult; it is a branch of science. Those who are interested in the part food plays in nutrition will read this book with interest and profit. Incidentally, it is delightfully written; so that although addressed primarily to the medical profession, it is well adapted to the general reader.

ANNUAL CHEMICAL DIRECTORY OF THE UNITED STATES.—Edited by B. F. Lovelace. Williams & Wilkins Company, Baltimore, Md. 365 pp. $5.

In these days of activity in all affairs into which chemistry enters it is well to be provided with all available chemical reference works. Messrs. Williams & Wilkins have collated several important lists of names. Herein are to be found the names and addresses of all American manufacturers of and dealers in chemicals, listed under each chemical. For instance, should you be in the market for acetanilid you can request prices from some 15 firms; if it is, at the other end of the alphabet, zirconium you are after the name of the one manufacturer thereof is duly given you. And in between acetanilid and zirconium there are 108 pages of names. The articles listed include acids, alkalis, colors, drug products, dyes, extracts, fertilizers, oils, preservatives, raw materials, salts and synthetic products.

There is also a complete list of American manufacturers of and dealers in apparatus and equipment, machinery and mechanical supplies useful or essential for scientific and technical laboratories, industrial plants and organizations.

There are lists of chemical engineers and consulting and analytical chemists; of Federal, state, municipal, industrial and professional laboratories; of all colleges—both American and foreign—offering courses in chemistry; of experiment stations in this country and abroad; of Federal and state officials of dairying, foods, drugs, health and feeding stuffs; of American and foreign technical and scientific societies; and of domestic and foreign chemical publications including the more important books published during the past year. As the publishers state this, their first, issue of this book is their contribution to industrial preparedness, industrial mobilization being a necessary preliminary step.

More Cornmeal in the Diet.

One way to reduce the cost of food for the family, say the specialists of the U. S. Department of Agriculture, is to use more corn meal, where this is low in price as compared with other cereals. Corn meal at present prices, when bought at retail stores, costs about half as much per pound as wheat flour, one-third as much as rolled oats, one-fourth as much as rolled wheat, and about half as much as broken rice. That is, it costs much less per pound than any of the other popular cereal foods, yet even the bolted corn meal usually sold, from which the germ of the grain has been removed to make the meal keep longer, has a food value which compares favorably with that of wheat flour. It does not supply quite so much protein or mineral matter for building the tissues of the body, but, on the other hand, it gives more fat and starch, pound for pound, and its value as fuel for the body is fully as high.

The old-fashioned unbolted corn meal made from the whole grain, which can often be obtained by the farmer who will take his grain to mill, and can often be purchased in shops and markets, contains more of the tissue-building material and has what many consider even a better flavor than the bolted meal, and is much liked for making some forms of corn bread. Recipes for using corn meal in many ways may be had from the Department of Agriculture upon request.

Recent Patents

The following patents of interest to readers of this journal recently were issued from the United States Patent Office. Copies thereof may be obtained from R. E. Burnham, patent and trade-mark attorney, 882 Bond Building, Washington, D. C., at the rate of 20c each. State number of patent and name of inventor when ordering:

1,220,205. Manufacture of alimentary products. Joseph F. Desmarais, Montreal, Quebec, Canada.

1,220,751. Food product. Kishiro Kanzaki, Summit, N. J.

1,220,845. Sandwich-cake machine. Chester W. Hitchner, Philadelphia, Pa.

1,220,903. Alternate driving-gearing for freezers. Wade H. Stemple, Aurora, W. Va.

1,220,922. Assorting-machine for canned goods. Marcenus M. Winningham, Seattle, Wash., assignor of one-fourth to Pierre Barnes, same place.

1,221,024. Method of treating milk. Charles H. Campbell, New York, N. Y., assignor to Borden's Condensed Milk Co., same place.

1,221,294. Egg-candling device. Michael J. Davis, Brooklyn, N. Y.

1,221,357. Art of estimating the solid content of liquid food products. Julius J. Mojonnier, Oak Park, Ill., assignor to Mojonnier Bros. Co., Portland, Me.

1,221,423. Stick-candy making and apparatus for same. Arthur E. Dempsey and Olie Steinbaugh, Council Bluffs, Iowa.

1,221,553. Process of refining sugar liquor. Jasper A. McCaskell, Salt Lake City, Utah.

1,221,554. Process of refining sugar liquor. Jasper A. McCaskell, Salt Lake City, Utah.

1,221,918. Chocolate-cooler. Paul Stalder, Philadelphia, Pa.

1,221,957. Pickling, curing, treating, and handling meat food products. Alonzo N. Benn, Chicago, Ill.

1,221,973. Manufacture of agglutinated rice-kernels. Andrew B. Cresap, Manila, P. I.

1,221,990. Process of obtaining starch. Hiram C. Holden, Pittsburgh, Pa., assignor to Washburn-Crosby Co., Minneapolis, Minn.

1,222,062. Food product and process of making the same. Roy H. and Wynn C. Bent, Antwerp, N. Y.

1,222,304. Manufacture of bread. Henry A. Kohman, Truman M. Godfrey, and Pauren H. Ashe, Pittsburgh, Pa., assignors to Ward Baking Co., New York, N. Y.

1,222,590. Device for testing the spreading value of baking materials. Joseph P. Bachman, Newark, N. J.

1,222,656. Means for preserving prepared cereal, cereal products, and the like. Paul S. Moyer, Chicago, Ill., assignor to Aridor Co., same place.

1,222,830. Method of treating cereals and cereal products. Ernest E. Werner, Indianapolis, Ind.

1,222,842. Automatic scale-weight fruit and vegetable sizer. Orin N. Boyer, Ontario, Ore.

1,222,926. Fish-beheading device. Benjamin R. Brierly and Edward H. Waugh, Seattle, Wash., assignors to Smith Cannery Machines Co., same place.

1,223,121. Process for making a non-alcoholic beverage. Alexander L. Straus, Baltimore, Md.

1,223,343. Fruit cutting and pitting machine. Karl G. Moltzner, Portland, Ore.

Free Trade With Canada in Wheat and Flour.

The Dominion government on April 16 passed an order in council placing wheat, wheat flour, and semolina upon the list of goods which may be imported into Canada free of customs duty. According to the Department of Commerce this brings these products under the provisions of United States tariff act of 1913, paragraph 644, which provides for the free admission of wheat, wheat flour, and semolina imported from countries in which similar products of United States origin are exempt from duty.

Food Stuffs Statistics.

The crop reporting board of the Bureau of Crop Estimates, United States Department of Agriculture, makes the following estimates from reports of its correspondents and agents:

The average condition of winter wheat on April 1 was 63.4 per cent of a normal, against 78.3 on April 1, 1916, 88.8 on April 1, 1915, and 86.2, the average condition for the past ten years on April 1. There was a decrease in condition from December 1, 1916, to April 1, 1917, of 22.3 points, as compared with an average decline in the past ten years of 4.0 points between these dates. Upon the assumption of average abandonment of acreage and average influences on the crop to harvest, condition April 1 forecasts a production of about 430,000,000 bushels, which compares with 481,744,000 bushels, the estimated production in 1916, and 673,947,000 in 1915.

The average condition of rye on April 1 was 86.0 per cent of a normal, against 87.8 on April 1, 1916, 89.5 on April 1, 1915, and 89.6, the average condition for the past ten years on April 1.

Report of Cold Storage Holdings of Creamery Butter, April 1, 1917.

Reports from 275 cold storages show that their rooms contain 6,239,268 pounds of creamery butter while on March 1, 316 storages reported 15,930,420 pounds. The 214 storages that reported holdings on April 1 of this year and last show a present stock of 6,022,216 pounds as compared with 3,345,717 pounds last year, an increase of 2,676,499 pounds or 80.0 per cent. The reports show that during March the March 1 holdings decreased 60.4 per cent, while our last report showed that during February the February 1 holdings decreased 48.1 per cent. Last year the decrease during March was 78.7 per cent, and in February 50.4 per cent.

Report of Cold Storage Holdings of Eggs, April 1, 1917.

Reports from 322 cold storages show that their rooms contain 172,944 cases of eggs while on March 1, 333 storages reported 5,473 cases. The 243 storages that reported holdings on April of this year and last show a present stock of 166,601 cases as compared with 263,644 cases last year, a decrease of 97,043 cases or 36.8 per cent. The reports show that during March the March 1 holdings increased 3,015.9 per cent, while our last report showed that during February the February 1 holdings decreased 97.2 per cent. Last year the increase during March was 430.5 per cent, and the decrease during February 91.9 per cent.

The 1916-17 egg season began with holdings on August 1, 1916, of 24.1 per cent smaller than those of August 1, 1915. Whereas the 1916-17 stock was practically exhausted on March 1, 1917, there remained nearly 35,000 cases in the same storages March 1, 1916.

Report of Cold Storage Holdings of American Cheese April 1, 1917.

Reports from 347 cold storages show that their rooms contain 8,768,185 pounds of American cheese, while on March 1, 353 storages reported 13,840,801 pounds. The 236 storages that reported holdings on April 1 of this year and last show a present stock of 6,901,389 pounds as compared with 8,442,527 pounds last year, a decrease of 1,541,138 pounds or 18.3 per cent. The reports show that during March the March 1 holdings decreased 36.2 per cent, while our last report showed that during February the February 1 holdings decreased 35.3 per cent. Last year the decrease during March was 40.3 per cent, and in February 26.4 per cent.

Report of Cold Storage Holdings of Apples, April 1, 1917.

Reports from 549 storages show that their rooms contain 792,942 barrels and 1,297,788 boxes of apples on April 1, 1917. The information received indicates that there were 42.5 per cent less apples in storage than on April 1, 1916, while the amount held April 1, 1916, was 43.9 per cent more than on April 1, 1915. The barreled apple holdings of April 1, 1917, show a decrease of 52.6 per cent from those of April 1, 1916, while the boxed apple holdings show a decrease of 5.2 per cent from those of April 1, 1916. On April 1, 1916, there were 68.9 per cent more barrels and 6.4 per cent less boxes in storage than on April 1, 1915.

Report of Stocks of Frozen and Cured Meats, April 1, 1917.

FROZEN BEEF.

The total stocks of frozen beef reported by 259 firms on April 1, 1917, amounted to 139,529,215 pounds, while the total stocks reported by 264 firms on March 1, 1917, amounted to 159,615,065 pounds.

CURED BEEF.

The total stocks of cured beef reported by 283 firms on April 1, 1917, amounted to 30,635,487 pounds, while the total stocks reported by 280 firms on March 1, 1917, amounted to 38.211,205 pounds.

FROZEN PORK.

The total stocks of frozen pork reported by 236 firms on April 1, 1917, amounted to 62,721,468 pounds, while the total stocks reported by 233 firms on March 1, 1917, amounted to 60,775,078 pounds.

DRY SALT PORK.

The total stocks of dry salt pork reported by 333 firms on April 1, 1917, amounted to 218,551,175 pounds, while the total stocks reported by 346 firms on March 1, 1917, amounted to 249,218,917 pounds.

SWEET PICKLED PORK.

The total stocks of sweet pickled pork reported by 417 firms on April 1, 1917, amounted to 326,917,806 pounds, while the total stocks reported by 429 firms on March 1, 1917, amounted to 352,736,147 pounds.

LARD.

The total stocks of lard reported by 374 firms on April 1, 1917, amounted to 60,691,012 pounds, while the total stocks reported by 388 firms on March 1, 1917, amounted to 81,368,248 pounds.

FROZEN LAMB AND MUTTON.

The total stocks of frozen lamb and mutton reported by 145 firms on April 1, 1917, amounted to 4,937,131 pounds, while the total stocks reported by 133 firms on March 1, 1917, amounted to 5,042,545 pounds.

Program of Retail Grocers' Convention.

The National Association of Retail Grocers will meet at Toledo May 21 to 24. There will be two sessions every day except Wednesday and Thursday. Conditions in the retail grocery business are extremely unsettled, on account of the steady advance in food prices, and the agitation for improved methods of food distribution. On this account a large attendance is looked forward to. Each session is crowded with business, and the schedule will be strictly followed. Monday will be devoted to the formalities of opening the convention; enrollment of the delegates, address of welcome and the annual address of the president, John H. Schaefer.

Program of the following three days is as follows:

Monday afternoon, the Convention will hear the annual reports of the standing committees and the officers of the Association, and a ten-minutes report from each state. In the evening, the Asparagus Club banquet will be followed by a ball, given by the Retail Grocers' and Butchers' Association of Toledo.

Tuesday opens with a breakfast for the visiting secretaries. The morning session of the convention will be devoted to routine business. In the afternoon addresses will be made by W. F. Fiske, Educational Director of the National Wholesale Grocers Association, John A. Green, C. F. Kurtz, of the State University of Iowa, and Leon M. Haltenbach.

On Wednesday, the convention will be addressed by Frank R. Seelye, president of the National Coffee Roasters' Association; Theo. F. Whitmarsh, president, National Wholesale Grocers' Association; Wm. D. Sweet, president American Specialty Manufacturers Association, and C. O. Russ and John S. Taylor, of the National Secretaries' Association. In the evening the men will have a smoker at the Terminal Auditorium, while the ladies go to the theater.

The final business of the convention will be transacted Thursday morning.

Good Advice for the Housewife.

During the past few months the United States Department of Agriculture has been furnishing periodicals of general circulation many articles on the subject of food. Among others has been the "Food Thrift Series," consisting, so far, of about a dozen separate articles. This series has been reproduced more or less fully in the newspapers and other media reaching the housewife, for whose particular benefit they are designed. A glance at the titles is sufficient to indicate the type of matter covered by the "Food Thrift Series." The initial number attacked the problem of how best to minimize the present wastage by the housewife of good food. Secretary Houston's statement that $700,000,000 annually is wasted in this way is dilated upon, the main points brought out being that good food is wasted (a) if it goes into the garbage pail; (5) if it is allowed to spoil; (c) if ruined by careless cooking; (d) by careless paring and trimming; and (e) when too much is served at a meal.

The second article was entitled "Help Feed Yourself," and had to do with the production of vegetables in home gardens and back yards. Article No. 3, being an amplification of No. 1, adjured the housewife to waste no food.

The fourth article in the series, "Abandon Food Prejudices," goes a bit deeper than do some of the others and should be acted upon by all of us. It is no doubt true, as the Government official states, that "people too easily get into food ruts; insist on eating only the food they are used to, and refuse to give a fair trial to others. This causes undue demand for certain staples, with resulting scarcity or high prices when crops are short. At the same time other valuable foods may be relatively cheap and available. A striking instance of this is failure fully to appreciate rice—a valuable source of starch—when potatoes are scarce and high. Another example is refusal in certain sections to use anything but wheat as a breadstuff, when corn—a valuable cereal, widely used elsewhere as a breadstuff—is plentiful and relatively cheap." There is no doubt but that the food supply of the nation would be increased in great measure and instanter if we, all of us, acted upon this most excellent advice.

The fifth article was headed "Watch Your Kitchen Waste" and had to do with thorough utilization of leftovers and nutriment ordinarily discarded during the process of cooking. The next article in the series, No. 6, was called "Let Nothing Spoil," and handled the very important subject of protecting food from heat, dirt, improper handling, flies, insects, rats and mice. The seventh article in the series, "Don't Let Milk Spoil on the Farm, in Transit, or in the Home," was of more interest to the farmer's wife than to the consumer, although it can be read with profit by all who use milk in the home. The eighth article was entitled "Preserve Eggs by Water Glass or by Limewater," and was the usual description of the sodium silicate and limewater methods. The next article, No. 9, was entitled "Cottage Cheese from Waste Skim Milk," and was a clear description of how best to make use of an over abundance of skim milk, whether on the farm or in the household.

"Economical Use of Meat" was the heading for Article No. 10 in the series. It contained much sound advice as to the necessity of using as much of the carcass as is edible. This was one of the most thorough-going articles in the series. The next article, No. 11, was entitled "Wild Greens and Salad Plants" and pointed out the fact that it is possible to use as greens many growing things other than the spinach and the dandelion commonly employed for that purpose. The next article was entitled "Good Food Combinations" and had largely to do with the intelligent utilization of leftovers from a previous meal.

Taken as a whole this series constitutes a very practical although somewhat superficial course in household economy and it is to be hoped that it will be acted upon by the large number of housewives who have seen this press matter in their home papers during the past month.

Staff Correspondence

Washington, D. C.

ADVISORY COMMISSION, COUNCIL OF NATIONAL DEFENSE.

Although Messrs. Rosenwald and Eisman have been constituted a sub-committee of the Advisory Commission in charge of food supplies, the active head of that sub-committee will be Herbert C. Hoover, late director of relief in Belgium. Recently Hon. W. S. Giffors, Director of the Advisory Commission, announced that Mr. Hoover will report to the Council of National Defense on the experience and action of European Governments in the matter of food production, conservation and prices, and make suggestions and recommendations as to the best methods of assisting the allies to meet their food needs and of preventing the evils arising from speculation and manipulation. Mr. Hoover will cooperate with the Department of Agriculture, assist State agencies and particularly urban communities in the study, distribution and conservation of food supplies. Mr. Hoover is expected to return soon from England and take charge of this work.

ADAMSON EMBARGO BILL.

The administration measure has been introduced by Judge Adamson, of Georgia, Chairman of the House Committee on Interstate and Foreign Commission, providing that whenever in time of war the President shall find that the public safety or welfare shall require, he shall proclaim that it will be unlawful to export any article from the United States except at such time or from such place and under such regulations as the President shall prescribe, until otherwise ordered by the President. Violation of the Act is made punishable by a fine of not more than $5,000, or imprisonment not exceeding five years, or by both, and the article exported unlawfully shall be forfeited to the United States.

WAR TAX MEASURE.

The Ways and Means Committee has of late been busy preparing the draft of a bill calculated to produce nearly two billion dollars in revenue for war purposes. One item already settled, unless reconsidered before the bill is reported to the House, is the change proposed in the tariff affecting articles now on the free list, such as tea, coffee and sugar. It was proposed by the Secretary of the Treasury to tax tea 15 cents a pound, coffee 5 cents a pound, and to place an excise tax of 1 cent a pound on sugar. The Republican and Democratic members of the sub-committee assigned to develop the bill could not get together on these proposed tariff changes and they agreed to drop them and undertake to raise the $200,000,000 expected from that source in another way, either by increasing the excess profits tax more than proposed, or making a heavy increase in the rates on first, second and third-class postage. Vigorous and very general opposition to the proposed stamp tax has appeared, it being denounced as obnoxious, vexatious and even "pestiferous." The drug trade especially seems active in this direction. The Administration insists the Government must have the revenue estimated by the Secretary of the Treasury, although it does not desire to "kill the goose that lays the golden eggs."

FOOD CONTROL MEASURES.

Senator Owen, of Oklahoma, has introduced S. 1994, authorizing the licensing and control of corporations engaged in the storing of food products for interstate shipment. A license fee of $500 is provided, to be paid to the local internal revenue collector on the first day of January or July each year. A report under oath as to the kind and quantity of food products in each warehouse must be made to the Secretary of Commerce on the first day of each month, who shall tabulate such reports and publish them. Labeling of all food products admitted to cold storage warehouses is also provided.

S. 2022, to conserve the agricultural food products of the United States and to prohibit their manufacture into alcoholic liquors, except in certain cases, has been introduced by Senator Thompson, of Kansas.

Senator Curtis, of Kansas, has introduced S. 1878, prohibiting the dealing in futures on foodstuffs.

BARKLEY MISBRANDING BILL.

Prohibiting the manufacture, sale or transportation in interstate commerce of misbranded articles, and to regulate the traffic therein, is the purpose of H. R. 3666, introduced by Representative Barkley, of Kentucky, this being the same bill as was favorably reported by the House Interstate and Foreign Commerce Committee at the last session of Congress.

WEIGHTS AND MEASURES.

Representative Dillon, of South Dakota, has introduced H. R. 3637, establishing a standard of weights for various commodities, including alfalfa seed, apples, dried apples, apple seeds, barley, beans, castor beans, beets, blue-grass seed, broom-corn seed, buckwheat, carrots, clover seed, shelled corn, corn meal, cotton seed, cranberries, cucumbers, flaxseed, hempseed, kafir corn, malt, oats, onions, parsnips, dried peaches, peanuts, pears, green peas, dried peas, pop corn, sweet potatoes, quinces, rough rice, rutabagas, rye meal, rye, etc. A definite weight is fixed for every bushel or fractional part thereof sold or purchased.

H. R. 3662, also introduced by Representative Dillon, provides for the establishment of the metric system as the standard for weight and measures in the United States on and after July 1, 1925. In the meantime the metric system shall be permissive.

DEFINITIONS AND STANDARDS.

The Joint Committee on Definitions and Standards met at the Bureau of Chemistry, during last month, and held some busy sessions, as usual with this important body. Dr. Carl L. Alsberg, J. S. Abbott and I. K. Phelps represented the bureau; William Freer, the Pennsylvania State Agricultural College, and Julius Hortvet, of St. Paul, the Association of Official Agricultural Chemists, and J. P. Street, of Connecticut, and H. C. Barnard, of Indiana, the Association of State Food, Drug and Dairy Commissioners.

J. B. Newman, Assistant Food Commissioner, and Drs. Sullivan and Hains, representing the Illinois State Food Standards Commission, were heard in relation to jams, jellies and preserves.

Representatives of the Ward Baking Company appeared on behalf of Arcady Yeast Food.

W. Parker Jones, formerly Assistant Chief of the Bureau of Chemistry, and before that, Assistant Solicitor of the U. S. Department of Agriculture, appeared on behalf of clients interested in definitions and standards for meat extracts.

The joint committee finished its consideration of definitions and standards for soda water flavors and also considered cheese and baking powder. It expects to make certain recommendations, or rather submit its findings for approval or concurrence to the American Association of Food, Drug and Dairy Commissioners at its annual convention in Deadwood, S. D., July 31st, next. They will next be submitted to the Association of Official Agricultural Chemists and finally to the Secretary of Agriculture. Spices were also taken up by the committee.

CONSERVATION OF TIN PLATE.

The Secretary of Agriculture and Secretary of Commerce are devoting particular attention to the conservation of tin plate for cans for fruit, vegetables and food supplies. Dr. Alsberg, Chief of the Bureau of Chemistry, and Dr. Pratt, Chief of the Bureau of Foreign and Domestic Commerce, have been very busy recently, working with manufacturers and users of tin plate to insure a sufficient supply for canning purposes. There is talk of limiting canning to perishables and also of requiring manufacturers of tobacco and other articles for which tin containers are not absolutely necessary to substitute cartons and other containers not made of tin plate.

SOLICITOR CAFFEY TO RESIGN.

While his nomination has not yet been sent in to the Sen-

Staff Correspondence

ate, there is every reason to believe that Hon. Francis G. Caffey, Solicitor of the U. S. Department of Agriculture, will soon be appointed United States District Attorney for New York, to succeed Marshall, whose term will expire some time in May. All members of the bar and others who have occasion to appear before the legal representatives of the Department of Agriculture will regret sincerely the leaving of Mr. Caffey. He has proved a very efficient and conscientious administrative officer on the law side of the department since taking charge of the Solicitor's office in April, 1913. He came to Washington from New York City, so that his new field of endeavor should prove very congenial.

California.

The California Walnut Growers' Association has found the cost of packing walnuts in paper cartons prohibitive, and is now experimenting with machines to brand each individual nut with its trade-mark, by means of a rubber stamp or some other form of printing. The cartons and containers have increased 100% in price, according to Manager C. Thorpe, since the original plan was adopted, and the association has reached the place where it must abandon either the cartons or the expensive advertising campaign now being conducted.

Idaho.

Idaho will probably double its crop production during the present year. The propaganda inaugurated by state officials under the so-called organized "war council" has given impetus to putting into effect a program, the most complete and thoroughly co-operative in the history of the State. Governor Alexander is chairman of the council. Other members are: Attorney General T. A. Walters, Secretary of State W. T. Dougherty, State Auditor Clarence Van Deusen, State Treasurer John W. Eagleson, State Superintendent of Public Instruction Miss Ethel E. Redfield, Chief Justice Alfred Budge, Justice John C. Rice, Justice William M. Morgan, Director of Farm Markets Harvey Allred, State Horticultural Inspector Guy Graham, State Veterinarian H. G. Bodle, State Mine Inspector Robert N. Bell, State Land Commissioner I. W. Smoot, and the heads of all State departments.

The Federal Grand Jury recently returned indictments charging violation of the Sherman anti-trust law, against the Mutual Creamery Company and its alleged subsidiaries located in the States of Idaho, Utah, Washington, Montana and Wyoming. The indictments were returned after the Grand Jury had made a week's investigation. The following creamery concerns and their officers, besides the Mutual Company, are named as defendants: Jensen Creamery Company, Salt Lake; Henningsen Produce Company, Butte; Schallinger Produce Company, Spokane; Commercial Creamery Company, Spokane; Hazelwood Company, Portland; Klock Produce Company, Seattle.

The evidence upon which the Grand Jury based its action was accumulated by three years of quiet investigation on the part of the Federal Department of Justice.

The indictment holds that one of the prime objects of the alleged conspiracy has been to restrain interstate trade in creamery and dairy products and, in particular, to prevent the purchase of butter fat and other raw materials by competing manufacturers and dealers in creamery and dairy products, and to prevent the sale of creamery and dairy products by competing manufacturers and dealers to all persons and dealers within the States mentioned, thereby eliminating them as competitors.

The Jensen Creamery Company has extensively operated in the Northwestern States for the past eight or 10 years. About three years ago it merged with the Mutual Creamery Company and under the management of the latter company many subsidiary companies were absorbed in various parts of the Northwest. Correspondence placed before the Grand Jury purports to show that the combine was gradually perfected by squeezing out the smaller creameries. The officers

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Staff Correspondence

of these small creameries wrote to the Director of the State Market Bureau complaining of the unjust business methods resorted to by the combine, the correspondence shows. The present indictment is the result.

PATENTS

I render expert legal assistance in obtaining patents to protect inventions. The value of a patent depends largely upon skillful preparation and prosecution of the application. Information about obtaining patents sent on request.

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Indiana.

The work of pure food control in Indiana is rapidly developing into a supervision of the food industries of the State. That means far more to both producer and consumer than the mere enforcement of police regulations.

The State Board of Health at its quarterly meeting adopted, and will shortly promulgate, a rule regulating the production and sale of milk that is the most comprehensive and far-reaching regulation of the milk industry that has yet been undertaken by any State Board of Health. The Board has adopted the recommendations of the Commission on Milk Standards. These recommendations were drafted after the most comprehensive study of milk legislation and regulation ever undertaken. The members of the Board are the leading authorities on the milk supply. The State Board of Health felt therefore, that it was in every way justified in adopting their recommendation as the rule to be followed by milk producers and distributors in Indiana. The fact that the Board has authority to promulgate rules which have all the force and effect of law practically writes into the law of the State a complete and perfected method of dealing with the dairy situation.

Commissioner Barnard has asked the president of each of the five hundred women's clubs in Indiana to read at the next club meeting the following letter:

"The 1917 Legislature passed several important laws. It gave the women the vote and an opportunity to take an active part in civic affairs, the enforcement of pure food and sanitary laws, the framing of better health and housing laws. It also passed a 'sale by weight' law to which I desire to direct your attention.

"In the past our business has been conducted by a double standard of weight and measure. The use of the capacity meaure was frequently fraudulent. By it the housewife got 12 pounds of potatoes to the peck instead of 15. The new law abolishes measures and compels the sale of all commodities by weight. The only exceptions are young onions, carrots, beets, etc., which may still be sold by the bunch, small fruits which may be sold by the quart and pint box, and fruits sold by the standard apple barrel or by count.

"We look to you and to the housekeepers of the State to see that this law is obeyed. We urge you to trade only with dealers who have discarded their measures and to advise us of those who persist in selling by measure.

"Help us enforce the laws which secure to you pure food, clean shops, healthy workmen and honest weights. Help your health officer, your milk inspector, your inspector of weights and measures, your tradesman, and so get better service, better protection and better living conditions for yourself and your family."

Iowa.

The Iowa State Retail Merchants' Association, at its convention at Sioux City on April 19th, adopted a resolution to enter a complaint before the Federal Trade Commission against Sears, Roebuck & Co., protesting against unfair methods of competition. The convention also favored a modification of the tax on oleomargarine, and requested that substitutes for butter be sold in individual sealed packages. A resolution asking the legislature to pass a law creating a state board to deal with unfair competition was also adopted. The convention pledged its support in aid of the Federal and State authorities in support of the pure food laws.

Louisiana.

It is announced that the 189 suits brought by Louisiana sugar planters against the American Sugar Refining Co. have been settled. These suits were brought under the Sherman anti-trust law, alleging an illegal combination in restraint of trade, and alleged unfair methods and price-fixing. The planters asked triple damages in the sum of $163,000,000. By the terms of the settlement, the company is unofficially stated to have agreed to pay between $600,000 and $700,000, and consented to certain trade regulations that are satisfactory to

Staff Correspondence

both parties The company will establish a trade laboratory in New Orleans similar to the one in New York City. The settlement of these suits ends practically all of the State and Federal litigation that has been pending in New Orleans for the past few years. The ouster suit of the State of Louisana is still unsettled, but negotiations for its withdrawal were started some time ago. The principal figures in the successful negotiations just concluded were Earl D. Babst, for the sugar refining company, and Donaldson Caffery, for the planters and growers.

Georgia.

Governor Harris has appointed four women as food inspectors in Waynesboro, Burke county. The appointment was made on the recommendation of the Federation of Women's Clubs, and the new inspectors serve under State Food Inspector Methvin without pay. They are authorized to make investigations and report to the department any violation of the food laws that may be found to exist. The appointees are: Miss Maggie Bethea and Miss Maud Smith of Reidsville, and Mrs. C. B. Garlick and Miss Nina Jones of Waynesboro.

Michigan.

With the nation involved in the most tremendous struggle the world has ever known, with the wastage of life and material beyond human comprehension, and with the problem of furnishing adequate food supplies evolving upon this nation, it is imperative that the State's facilities to increase and conserve the nation's food supplies be utilized to the fullest possible extent.

The dairy industry constitutes the backbone of Michigan agriculture and in order that the product of the State's cow population numbering approximately 865,000 head, may be utilized as human food in the most economical and far-reaching manner, all commercial branches of the industry embodying the production, manufacture and marketing have been mobilized under the name of the Michigan Dairymen's Association, with N. P. Hull, former master of the State Grange, president of the National Dairy Union and a member of the Farm and Food Preparedness Board, appointed by Governor Sleeper as president; D. W. Shiel, Hillsdale, vice-president, and H. D. Wendt as secretary, for the purpose of co-operating with the State agencies above mentioned.

It is conservatively estimated that Michigan condensaries, milk powder plants, cheese factories and market milk distributors utilize the product of approximately 400,000 cows. The balance, consisting of 465,000 head, furnish butter fat for the three hundred-odd creameries in the State which do not utilize the skim milk. It is returned to or kept on the farm as food for live-stock, for which purpose it has a feeding value variously estimated at around forty cents per hundred pounds, as compared with seventy-five cents per hundred if manufactured into cheese based on its present market value, leaving the whey to be utilized in feeding live-stock, for which purpose it has a commercial feeding value of approximately fifteen cents per hundred pounds.

The conserving of the food elements in milk for human food as far as possible is a matter that should be given serious consideration. Creameries could be equipped to convert skim milk into cheese at a cost not exceeding five hundred dollars per creamery, and thus conserve the protein in the milk (approximately 3½ per cent) for human food, and representing a monetary value on present market basis of approximately five million dollars annually.

The situation which now confronts the nation leads us to urge milk producers and manufacturers of dairy products to set forth their best efforts in increasing the volume of production and utilizing the same by the manufacturing into human food as far as possible all of the food elements in milk. There can be no overproduction for the duration of the war, and even in normal times with the dairy interests awakened to the fact that the consumption of dairy products

FREE—Cook Book

Wouldn't you like to taste the delicious crisp-crusted biscuits and hot bread that Cottolene makes?

Wouldn't you like to see how quickly and deliciously wholesome Cottolene does all kinds of frying?

Wouldn't you like to taste delicious cakes and cookies made without butter—with Cottolene?

We believe you would. So we have printed a Special Cook Book containing 239 recipes by famous cooks. We shall be glad to mail you this Cook Book free.

If you prefer to use some of your own recipes be sure to use one-third less Cottolene than you use of other shortening. Cottolene is richer and goes farther. But this unusual Cook Book is well worth writing for.

Write to The N. K. Fairbank Company, 111 West Washington St., Chicago, Ill.

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"Makes Good Cooking Better"

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31 N. State Street CHICAGO, ILL.
DEPARTMENTS: Food, Commercial, Medical, Milling and Baking.
Expert Staff of Consultants. Court and Medico-Legal Work.

The Sanitation and Hygiene Institute
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Armour's
QUALITY
PRODUCTS

Our aim is not only to produce PURE foods, but to have those foods REMAIN pure. Armour's Star Ham, in the Stockinet Covering (an exclusive feature, patent applied for), is so fortified that no impurities can reach the skin. This juice-retaining knit covering insures a ham that is sweet in flavor and rich in natural juices.

"The Ham What Am"

Other Armour Quality Products: Star Bacon, "Simon Pure" Leaf Lard, Grape Juice, Devonshire Farm Style Sausage, Glendale Oleomargarine (Natural Color), Silver Churn (White) and over 100 Veribest Package Foods.

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Packer and Manufacturer
of the Finest

"EDDYS"
BRAND

Canned Foods,
Jellies, Preserves,
Plum Pudding,
Sauces, Table Delicacies,

and

PRIDE OF THE FARM
Tomato Catsup

Bridgeton, N. J.
and 331 Spring St., New York

Staff Correspondence

may be greatly increased by the intelligent use of advertising and other educational mediums such as used in the campaign now being conducted by the National Dairy Council, makes it reasonably certain that both producer and manufacturer will receive ample returns on labor and investment involved.

The agencies under whose auspices this is written extend to both producer and manufacturer of dairy products in Michigan their fullest co-operation and assistance. In the language of the President, the supreme test of the nation has come; we must all speak, act and serve together.

H. D. Wendt,
In Charge Dairy Division.

Approved:
Fred L. Woodworth,
State Dairy and Food Commissioner.
A. C. Anderson,
Chief, Dairy Department, M. A. C.
Fred M. Warner,
Chairman, Michigan Farm Preparedness Board.
N. P. Hull,
President, Michigan Dairymen's Association.

A test of the "cash and carry" plan for retailing groceries, which consists in making a reduction in price to the consumer who pays cash and carries the groceries home himself, was made at the recent food show of the Grand Rapids Retail Grocers' and Meat Dealers' Association. Every visitor, on the last day, was given a ballot on which to express his opinion for or against the plan. The vote was 426 for and 629 against. A number of grocers are said to be considering putting the new plan into operation on the strength of the test vote, the theory being that, although the majority favors the old way, there is a strong minority that believes that the retailer should be helped to reduce his overhead.

Minnesota.

According to the recently issued report of the State Dairy and Food Commissioner, 33,863 dairies were inspected during the biennial period ending July 31, 1916. This includes the dairies supplying milk to cities, and farm dairies delivering milk to creameries and cheese factories. These inspections were followed up, when necessary, by sanitary notices for improvement; 66,968 cans of cream were inspected throughout the State, the cream in 289 of which was condemned as unfit for use. The inspectors of the department gave 330 examinations for licenses to operate the Babcock test. Assistance was given in the organization of 22 new creameries; 3,643 milk and 5,052 cream samples were taken for analysis.

Store inspections to the number of 21,130 were made, and 4,182 samples of food taken up which were suspected of being in violation of the law. The inspection of stores was also made to secure evidence of the violation of the cigarette law, and 473 seizures of cigarettes were made. The inspection included 971 meat markets.

In co-operation with the hotel department, 1,423 hotels were inspected by the dairy and food commissioner's staff, and 404 hotel license fees collected.

Beside the regular field work, the inspectors of this department are called on for special work. Thus, for several years a number of creamery inspectors have been employed in the dairy school. They also serve as judges at county fairs and score butter in the educational contests and State fairs.

Food inspectors of the State Dairy and Food Department have seized 600 circulars advertising Wilson & Co.'s oleomargarine, alleging that they violate the pure advertising law of the State. The statement objected to is that oleomargarine can be used satisfactorily for every purpose where butter is commonly employed. The packers have demanded the release of the advertising matter on the ground that the dairy and food department has no control over advertising.

A bill to place an added tax on dealers in oleomargarine has been killed, mainly through the activity of the St. Paul Retail Grocers' Association.

J. M. LEHMAN COMPANY

Established 1834

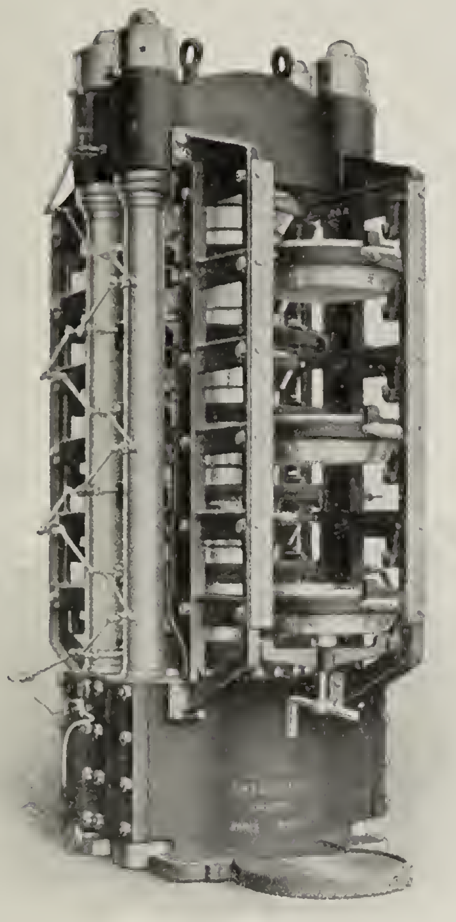
13-15 LAIGHT STREET, NEW YORK

Machines for Manufacturing Chocolate and Cocoa and other alimentary products.

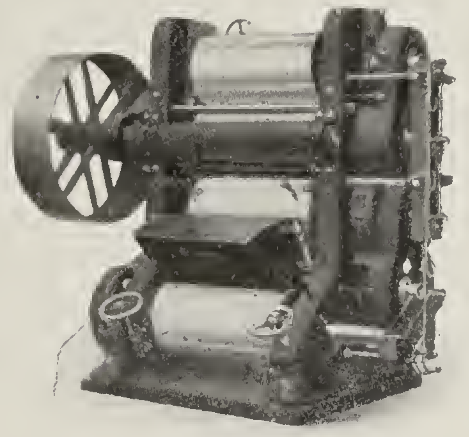
Latest Awards

Paris, 1900	Grand Prix
St. Louis, 1904	" "
Milano, 1906	" "
Budapest, 1907	Gold Medal
Dresden, 1907	" "
Bruxelles, 1910	" "
Turin, 1911	Grand Prix

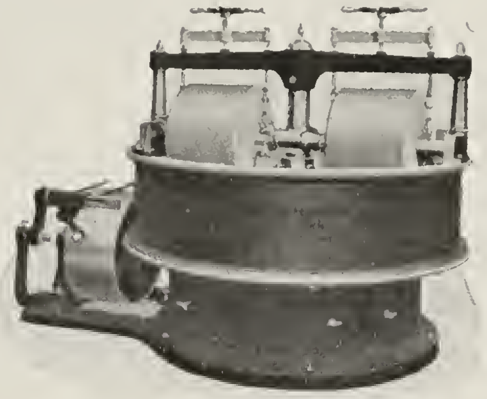
33 Gold and Silver Medals
San Francisco, 1915
Grand Prix
for Cocoa and Chocolate
Machinery



Cocoa Press



Five Roller Finisher



Melangeur

New York.

A long campaign for radical and revolutionary food-control legislation seems to be ending in the New York State Legislature in a decision by the legislators to have an official body carefully look over the field for another two years at least.

Instead of putting the State directly into business, through erecting terminal markets as the Socialists demanded along with demands that farms be bought outright to guarantee New York City an adequate milk supply, the legislators seem determined to organize a Food and Markets Conference. This conference is protected from domination by any one section of the State, or any one interest in the State, through a process of appointment similar to that governing the regents of the State University. One commissioner is to come from each judicial district and in case of removal or resignation a successor is to be named from the same district.

The council as a whole, members of which are to serve without pay, are to determine the food policy for New York. They may study terminal problems, but have scant power to take action without the sanction of a subsequent legislature. Even the outbreak of the war was not considered sufficient cause to give the commission dictatorial powers, or powers to seize food in emergencies. The measure providing for these remedial and reform provisions, is to be known as the successor to the Wicks bill which died at a legislative hearing in Albany attended by the commission merchants and the food trade generally of New York City.

The Wicks measure brought city and State into direct competition with the food trade in general and imposed rigid public regulation by a seven-headed, highly-paid commission, upon the trade. It differed from the proposed substitute in that Senator Elon R. Brown, who gathered up the shattered pieces of the Wicks bill and framed its successor, is the Republican legislative leader. He is majority leader of the Senate and his word is known to carry further in Albany than that of any other legislator.

There is still a fight for the final form of the food control policy in the Empire State. All sorts of theorists and reformers have specialized on food this winter until the trade has been called to one mass meeting after another to protect its interests and find out what legislative measures were being aimed at it. One group has called for socialization of the food distribution problem, ranking it with water distribution in importance, and demanding that all business considerations be eliminated. One of the interesting fights was that waged by the market interests, in part, and by farmer interests, in part, against the New York City Board of Health. These interests objected to the thorough-going inspection system enforced at the piers and docks to protect the city's population from unfit food. New York City's six million people have a food bill of over $800,000,000 per year, and it is only within the past two years that the problem of handling this food supply has been worked out sufficiently for the Health Department to be a real menace to unfit food. Farmers didn't like the new restrictions, based on a complete knowledge at all times of the condition of food in the wholesale warehouses, in the freight yards, and on the piers. The middlemen didn't like the new restrictions either. Both groups were accustomed to passing their partly spoiled goods on to retail shops, where the retailer must sell only the good portion or be subject to fine and imprisonment. So they opened fire in legislative hearings and in the public press.

However, Lucius P. Brown, Chief of the Bureau of Food and Drug Inspection, met these attacks both before the legislature and at meetings where the old view of health regulation was presented. Mr. Brown merely asked if the people of New York wanted unfit and rotting food to be widely distributed all through the city's trade arteries or if it wanted it stopped at the water front, where it could not pollute other food and break down sanitary standards in every section of the community. The answer was in Mr. Brown's favor. He was so thoroughly backed up that there probably will never again be any attempt to interfere with the new system of

WARD'S TIP-TOP BREAD

is bread you can eat with a sense of safety because it is pure, clean and the standard of quality wherever sold.

It is pure, because only the highest grade bread making materials which money can buy are used in making it and the process under which it is made is the most advanced and scientific known to the baking industry.

WARD'S TIP-TOP BREAD is Clean because it is made in bakeries which are models of bread-making cleanliness. Every loaf is wrapped in waxed paper by MACHINE.

Hence, when you buy it you are guaranteed these three food manufacturing virtues—Quality, Purity and Cleanliness.

WARD BAKING COMPANY

THERE IS CLEANLINESS, HEALTH INSURANCE, ECONOMY AND CONVENIENCE IN

Our PET BRAND Evaporated Milk

The Standard of the World

Wins and Holds Trade on account of its Superior Quality

PREPARED BY
Helvetia Milk Condensing Co.
HIGHLAND, ILLINOIS
ORIGINATORS OF EVAPORATED MILK

forcing the reconditioning of each box of food before it can leave a pier or freight terminal, if there is evidence that decay has set in in that particular package.

Inspectors find some amusing incidents in locating rot among vast wholesale supplies of stored food. Six inspectors, for instance, watch the arrival of millions of pounds of food by steamship. There were 14,000 barrels of grapes aboard the Mar-Caspio, due from Spain last December, but several weeks late in arriving. The late arrival was a warning to the inspectors. They knew that the first breakdown of a grape is followed by the running of juice. They looked therefore for stained barrels and when they saw brown stain on a barrel they had that barrel separated from the others. They thus culled out, very efficiently, the sound barrels from the questionable ones, and the few inspectors did a task that a hundred untrained men might not have done so well.

The work in which Mr. Brown has been so completely upheld here was organized by Dr. Goldwater, considered by many to be the greatest authority on health matters New York City has had in the public service. In organizing the Bureau of Foods and Drugs Inspection in 1914 he held a civil service examination in which 60 applicants responded from all parts of America. Lucius P. Brown came out at the head of the list. Mr. Brown, on taking hold, found that the custom had been to let the warehouses and terminals alone and to look for bad food among retailers only.

A survey of the docks and piers preceded the beginning of the present system. He found he had to make plans for covering the largest food distributing plant in the world. It consisted of 125 piers and terminals, 30 wholesale markets and 300 commission establishments. He placed 85 inspectors at this gigantic task and soon worked out an efficiency system that enabled a force so small to really cover the ground. A warehouse squad, a terminal squad, a factory squad, a milk squad, an oyster squad, a poultry-killing squad, suggest the units of organization employed. Each squad leader was accompanied on his rounds, was backed up and supported so loyally that he began to take real pride in his work. Of graft hardly a whisper is now to be heard in the Health Department. It has jumped into its job with such vigor that it is reaching out to many other departments to establish co-operation under which it will be able to pass along its surplus information for the general good. And the work is only in its initial stages. Yet it has a record of having condemned over 20,000,000 pounds of unfit food within the past year. This was bound for the markets of all cities as well as for the markets of New York City.

Nebraska.

Federal food inspectors, working in co-operation with local officials, have discovered that 250,000 bushels of navy beans in storage at Omaha have become mildewed and unfit for human consumption. The ownership of the beans seems to be involved in some mystery. Most of the lot came from West Hammond, Ind., but the name of the consignee could not be learned.

Ohio.

Extraordinary steps have been taken by Ohio to increase its food supply. The campaign is under the direction of what is known as the War Preparedness Council of Defense, of which Governor James M. Cox is president. The chief units of the council are the agricultural and labor divisions. Dr. W. O. Thompson, president of Ohio State University, of Columbus, is at the head of the agricultural division, and Fred C. Croxton, former statistician of the State industrial commission, is at the head of the labor division. The State has been divided into 55 districts, and a food and crop commissioner has been appointed for each district, and a similar commissioner has been appointed for each of the 88 counties of the State. The county commissioner has appointed a subagent in every township. The duty of these commissioners and under agents is to promote greater crop production. The duty of the labor division is to find labor for the farms. The Governor has given each commissioner and agent a war com-

The Sun
Never Sets on

ROYAL BAKING POWDER

Known the world over as "the best baking powder."

Royal Baking Powder contains no alum. It is made from pure cream of tartar, which is derived from grapes. Hence, it assures wholesome and appetizing food, free from all adulterants that may go with would-be substitutes.

mission. The State has established 15 free employment offices in various cities, and through these and other offices it is hoped to provide farmers with all necessary laborers. The high schools, colleges and universities have released several thousand pupils and students for farm labor, agreeing to give them credit for the full school term. The State grange with its thousands of members is working hard to make the movement a success. The mayors of prominent cities met with the governor and promised to push cultivation of back yard and vacant lot gardens. In some of the principal cities the lawns on leading thoroughfares are plowed up and planted with potatoes and other vegetables. Gardening experts from the State University are going over the State in squads, instructing city folks. The superintendents of 22 State institutions which have farms were called before the governor and directed to increase their crop production this year. Loafers are to be picked up by the authorities in the various municipalities and forced to work on farms which the cities are leasing, workhouses which have farms are getting additional land so that more prisoners can be put at work increasing the food supply. By order of the governor 3,000 acres of unused canal land in various parts of the State are being turned over to county and local officials to be cultivated. The crop from these lands will be given to poverty-stricken people. The 99 canning companies of Ohio, which operate 150 factories, have been urged by the State council to conserve the supply of tin by discontinuing the canning of such non-perishable foods as beans and hominy. Hotels and restaurants complying with an appeal of the governor are cutting the tips from potatoes and saving them for seeding purposes. Commissioner T. L. Calvert has issued an appeal to the farmers to do their utmost to get an increased food supply. He advocates exempting from military service those who volunteer for farm work.

N. E. Shaw, for the past nine years chief nursery and orchard inspector of the State Board of Agriculture, has been appointed to succeed George A. Stauffer, of Ottawa, resigned, as secretary of that board, at an annual salary of $4,000. In June a new law will take effect changing the title of the office to "Secretary of Agriculture" and giving the holder of the office vastly increased powers. Shaw brings to the office a great measure of preparation. He was born and raised on a farm. He was graduated from the College of Agriculture of the Ohio State University. He had one year's experience with the largest dairy herd in northern Ohio. He is president of the Ohio State Horticultural Society, is secretary of the National Association of Apiary Inspectors, and is a member of the American Association of Economic Entomologists.

Leo B. Forst, chief government chemist for the district of which Ohio is a part, who has headquarters in Cincinnati, is making a survey of this State to ascertain the number and capacity of food stations and the quantity of food they contain.

South Dakota.

The city garden idea has struck deep in South Dakota, and a large number of home gardens are being seeded. But that the wheat acreage will be materially increased does not show upon the surface. The farmers hesitate because of their fear that they will not be able to secure help to harvest the crop The acreage of potatoes and beans will be greatly increased; although many farmers object to planting potatoes at the present price for seed, due to the possibility of being forced to sell at a definite and perhaps unprofitable figure set later on by the Government.

The Great Western Sugar Company has shipped a carload of beet seed to Belle Fourche, where they are building a refinery. This company has contracts for the planting of a large acreage and have brought many trained beet growers from the Colorado fields to cultivate the new district.

The Sioux Indians are being mobilized to assist in crop production for the coming year, Superintendent F. C. Campbell, in charge of the Cheyenne River Reservation, having charge of their work.

Tennessee.

During March the Department of Foods and Drugs devoted 112 days to inspection work. This is an average of 4 men in the field for each of the 27 working days. The inspectors visited 117 towns, distributed over 42 counties. The number of food handling establishments inspected was 1,939, 782 of which were not in good condition, and required the issuing of a sanitary order. Thirty-eight lots of food unfit for use were condemned, the total weight being 7,337 pounds. The principle items as regards quantity were canned vegetables 3,497 pounds, flour 896 pounds, fresh fruit 872 pounds, dried fruit 484 pounds, sausage 480 pounds and baking powder 173 pounds. Ten soft drink establishments were visited and 4 samples taken. Two investigations were made under the drug store liquor law. Packages found not labeled to show their net contents numbered 3,716. One hundred and seventy weighing devices were inspected and 49 condemned. Eighty-one measuring devices were investigated, of which 48 were condemned. Five prosecutions resulted in verdicts of guilty, and one was compromised. Thirty-eight hotels were inspected and 17 hotel certificates were issued. The food and drug laboratory reported 47 food samples, of which 30 were illegal, and 28 drug samples, of which 10 were illegal.

Virginia.

Governor Stuart has appointed an Agricultural Council of Safety, which is now engaged in formulating plans for handling the labor, financial and other problems which are confronting the farmers at this time. The labor situation has assumed alarming proportions due to the activities of the labor agencies who have been enticing colored laborers out of the State with all sorts of rosy promises of easy and well-paying jobs in the North and West, which did not materialize. Steps are now being taken by the municipalities to enact ordinances which will curtail the work of these labor agencies. The Council of Safety will also seek the aid of the urban population in endeavoring to have as many of those as can return to the farms, and the Boy Scouts will also be asked to aid in helping to solve the serious problem of labor. Planting is more than a month behind, and at this time there is no way in sight to obtain employes to work the crops. This matter is, however, receiving the constant attention of the Council of Safety.

Purity of essential ingredients
Constant U. S. Government Supervision
Strict compliance with all State Pure Food Laws
Rigid sanitary rules in every step of production.

These rules are fully appreciated by
MORRIS & COMPANY,
which sincerely endeavors to merit the
confidence of the ever-increasing patronage
given their choice oleomargarine
"MARIGOLD"
The National Bread Spread.

MORRIS & COMPANY
E. St. Louis Chicago Kansas City
Omaha, S. S. St. Joseph Oklahoma City
Branches in nearly all large cities

Financial assistance will be secured by the council for the farmers through the bankers, and the communities will also be asked to assist in helping the farmers purchase equipment, seeds and other vital needs. Instruction in the handling of crops, conservation methods, and every means looking to the production and handling of food products during the national crisis will be imparted to the farmers.

The first fish-hatchery to be established in the State has been installed in the Pamunkey River, under the direction of the Department of Game and Inland Fisheries. It is one of the most complete in the United States, and is in charge of government experts. The hatchery has a capacity of 40,000-000 shad annually, and various other fish will be produced.

Wisconsin.

The Wisconsin Pea Packers' Association has filed its answer against the complaint of the State by Walter Owen, attorney general, which alleged a combination to fix prices and control output. The defendant corporation denies it is formed to control or combine the pea product; denies a scheme to fix prices and denies that its members were prevented from making contracts at certain dates. It submits its system of cost accounting and other provisions of its organization were suggested and approved by the Federal Trade Commission and that it is solely an organization to facilitate the raising, canning and marketing of peas.

Report of Tea Examiner.

The report of the Supervising Tea Examiner for the month of March shows that 4,504,568 pounds of tea were examined, of which 367,015 pounds were rejected. The largest part of the rejections were in the Chicago district, where 203,918 pounds were rejected as against 207,918 pounds passed. Out of 265,120 pounds of Japan dust passed upon, 203,280 pounds were rejected.

Rice Bran a Poor Feed for Hogs.

That a rice bran ration will cause hogs to dress soft, thereby lowering their quality and their market value, has just been proved by tests conducted at the Texas Agricultural Experiment Station. The conclusion of the Texas experts settles a question of long standing between the farmers of certain southern districts and the packers who have been buying their hogs.

Dr. R. J. H. DeLoach, head of Armour's Bureau of Agricultural Research and Education, visited Texas very recently for the purpose of investigating the status of the soft meat question. Upon consultation with a number of farmers and the authorities at the Texas Experiment Station, he found that considerable attention had already been given to this work and that the Experiment Station had just made new discoveries of the causes of soft meat. Dr. DeLoach says:

"The tests conducted by the Texas Experiment Station authorities, throw light on a matter that had previously been much in the dark. For a long time past farmers in certain sections, especially in the peanut-growing districts, have sold their hogs under an agreement that the top prices would not be paid for hogs that dressed soft. When the hogs did dress soft the packers suspected they had been fed on peanuts, but nine times out of ten the farmers indignantly—and justly so as it now appears—denied it.

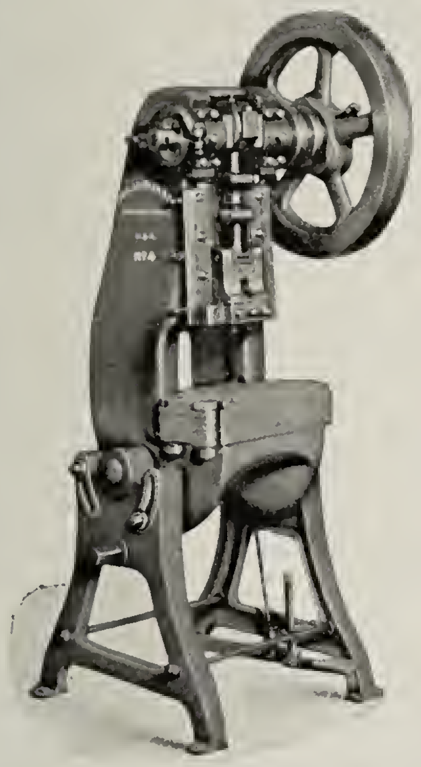
"Their vigorous assertions that they had not fed the hogs on feed that was recognized as causing them to dress soft led me among others to visit the field and to make inquiries. I found that rice bran was much used as a feed and after a rather tedious investigation and much questioning, some of the farmers admitted that they believed rice bran was the cause of the hogs dressing soft.

"Just at this time the Texas experts finished experiments which are conclusive and which satisfy me that rice bran is similar to peanuts in that it causes hogs to dress soft. The Texas authorities are soon to issue a bulletin to that effect.

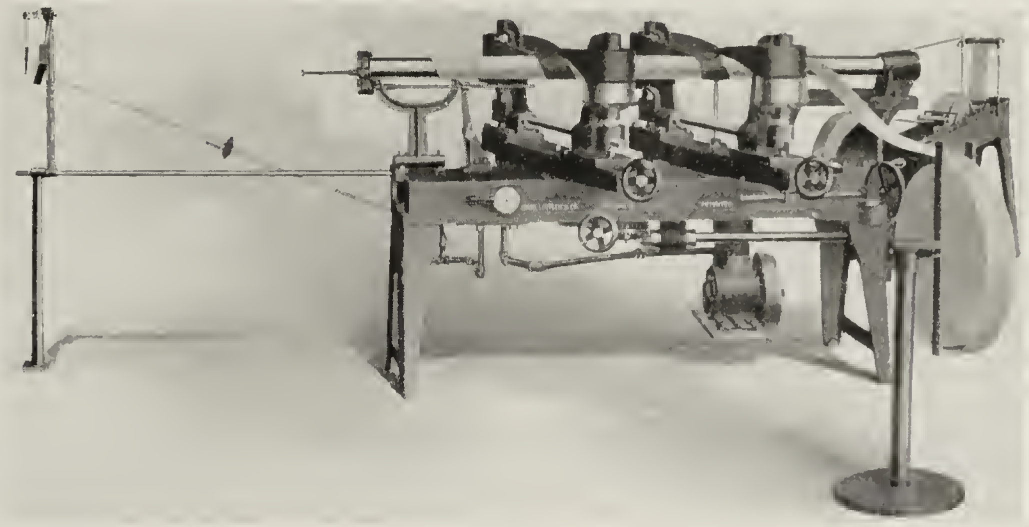
LEFFLER SPECIAL MACHINERY

Paper Can Machinery
Automatic Tin Can Machinery
Sanitary Can Machinery
Metal Package Machinery
Soldering Machinery

CATALOGUES ON REQUEST



Chas. Leffler & Co.
Clymer Street Kent Avenue
BROOKLYN, N. Y.



D. Lloyd George on the Food Situation.

Dr. Beverly T. Galloway, assistant to the Secretary of Agriculture, and in charge of the department's emergency measures for dealing with the agricultural situation, issued the following statement on April 13:

The following letter issued by the British Premier, David Lloyd George, while addressed to the people of England, conveys advice distinctly applicable to the United States and which should be heeded by everyone who can do anything to produce food or save food from waste:

10 Downing Street, Whitehall, S. W.
March 5th, 1917.

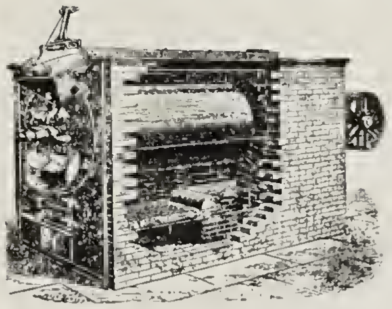
We have now reached a crisis in the war when to ensure victory, the heroism of our armies at the front must be backed by the self-sacrifice and tireless labor of everyone at home. To this end the production of each quarter of wheat and oats, and of each bushel of potatoes is of vital importance. The work of the next few weeks must decide the harvest of the year; and in the nation's interest I urge you, at whatever personal sacrifice, to overcome all obstacles, to throw your fullest energies into the work, and to influence and encourage all who assist you, so that every possible acre shall be sown.

The imperative demands of the war have made it impossible to avoid calling up men fit for active service, even though skilled in farming. As far as possible this is being met by bringing on to the land men and women from other industries. They cannot be expected to do work equal to that of men expert in agriculture; but there is no time for delay and the Government is confident that farmers will at once step forward and do all in their power to utilize their services to the best advantage.

The farmers of this country can defeat the German submarine and when they do so they destroy the last hope of the Prussian. Yours faithfully,

(Signed) D. LLOYD GEORGE.

GOTTFRIED BAY
successor to Chris. Abile
537 West 50th Street, New York



"Dufour" Bolting Cloth
Wet Mustard Mills
French Burr Stones

Manufacturer of
ROASTING, GRINDING AND SPECIAL MACHINERY

GOOD-BYE FLY

According to Department of Agriculture Bulletin No. 118: Apply 0.62 pounds Borax to every 10 cubic feet of manure. Apply Borax particularly around edges; sprinkle with 2 or 3 gallons of water. This treatment should be repeated with each addition of fresh manure. Flies lay their eggs in fresh manure. Borax prevents their hatching.

PACIFIC COAST BORAX COMPANY
NEW YORK CHICAGO OAKLAND

Rumford
THE WHOLESOME
BAKING POWDER

Worthy of the highest commendation as a healthful, efficient and economical leavening agent.

The acid ingredient in Rumford is the genuine Prof, Horsford's phosphate in its improved form. It restores phosphatic elements equivalent to those which fine wheat flour loses in the milling.

A Perfect Baking Powder.

F.70 4.17

TIN and FIBRE CONTAINERS

FOR

Foods, Drugs, Oils

Infinite Variety
Large Capacities
Prompt Deliveries

American Can Company
Chicago New York San Francisco
WITH OFFICES IN ALL LARGE CITIES

California Packing Corporation to Nationally Advertise California Canned Fruits and Vegetables.

California is the constant source of interesting news topics to the grocery trade, but now comes the announcement of a colossal advertising campaign, the largest and most extensive ever conducted exclusively on California canned fruits and vegetables and other kindred Pacific Coast products. This is of more than ordinary interest to the trade and the public as well, in view of the fact that back of it is the California Packing Corporation, the largest canners of fruits and vegetables and packers of dried fruits in the world. The personnel of this company needs no introduction to the trade. In it are men who have made the California canning business what it is today—pioneers in the business, grown up with the industry and who through life-long study have learned how to grow and can California fruits and vegetables as they should be.

The enormous quantity of Pacific Coast products packed and handled annually by the California Packing Corporation may be appreciated by the fact that its total output is sufficient to supply about five pounds of good food to every man, woman and child in the United States. Over sixty-five canneries and dried fruit packing plants are operated by this company in the best fruit sections of California as well as Idaho, Oregon, Washington, Utah, and the Hawaiian Islands; it also owns and conducts large orchards and farms in California and pineapple plantations in the Hawaiian Islands. With the reputation this company enjoys for thoroughness in its undertakings, this coming advertising campaign promises one of unusual character and one which will mark a great, forward stride in the advertising of California fruit and vegetable products. In the natural appeal of California and her products there is a fertile field for developing an advertising campaign of appealing individuality, to say the least. Advertising of this magnitude can result only in a greatly increased per capita consumption of California canned fruits and vegetables and a corresponding demand for these products in the trade.

Only partial details of this campaign have so far been announced, but we are informed the California Packing Corporation will feature its celebrated Del Monte brand, which carried away the Grand Prizes at both the Panama-Pacific International and the Panama-California Expositions, and which already has a very extensive distribution in this and foreign countries. The main force of the campaign will be directed on the consumer—in fact, it is said forty-eight million full page messages in color will reach the consumers of this country in magazines alone. The entire campaign will predominate in color and a special staff of prominent artists and skilled copy writers from New York are now in San Francisco working out the details. The unprecedented heavy future bookings to date, as reported by the California Packing Corporation, indicate an active anticipation on the part of the trade of a heavy demand for these products through the result of this campaign.

Currier and Forbes in New Offices.

Albert Dean Currier and Daniel R. Forbes have issued an announcement to the effect that they are moving their offices to Suite 301-304 Home Insurance building, 137 South La Salle street, Chicago, where they will, respectively, continue in the general practice of law, but will co-operate with each other and with other attorneys in cases particularly involving U. S. food laws and U. S. internal revenue laws.

Mr. Currier, who is well known to the Chicago bar and to administrative officials in Washington, particularly in corporation and U. S. internal revenue cases, will continue to give special attention to such cases. Mr. Forbes, who was formerly associated with the U. S. Board of Food and Drug Inspection, will give special attention to cases arising under the Pure Food laws.

They are also preparing jointly to establish at an early date an office in Washington, D. C., for the convenience of their clients having cases before the U. S. departments and other tribunals in that city. The location of the Washington office will be announced later.

M

Mixed Flour *Canning* *Soda Water*

THE AMERICAN FOOD JOURNAL

VOLUME TWELVE
NUMBER SIX

Chicago, June, 1917

$1.50 PER YEAR
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Home Canning: Soldering the Lids

DR. PRICE'S
DELICIOUS
FLAVORING EXTRACT
VANILLA

is made from

The Finest Mexican Vanilla Beans

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The same high quality is found in Price's

Lemon, Orange, Raspberry and Strawberry

PURE FRUIT EXTRACTS

PRICE FLAVORING EXTRACT CO., CHICAGO ILL.

Eat Plenty of Bread—It's Good For You

The consumption of Bread in this country is constantly increasing.

The Wholesomeness, Healthfulness and Economy of Bread make it the "Perfect Food."

Fleischmann's Yeast Makes the Best Bread.

THE FLEISCHMANN COMPANY
FLEISCHMANN'S YEAST

THE AMERICAN FOOD JOURNAL

—*with which was combined on St. Patrick's Day, 1917*—

The American Food Manufacturer

There is no higher art than that which tends toward the improvement of human food.—*Henry Ward Beecher.*

ROBERT GORDON GOULD, *Editor*

Vol. XII JUNE, 1917 No. 6

New Solicitor of the Department of Agriculture.

Recent word from Washington states that Mr. William Martin Williams is now Solicitor of the Department of Agriculture. This is the post recently vacated by Mr. Francis G. Caffey. Mr. Williams hails from the south, having been Mr. Caffey's law partner.

National Convention of State Food Control Officials.

According to the latest reports the 1917 convention of the Association of American Dairy, Food and Drug Officials will be held either at Atlantic City or Niagara Falls from July 31 to August 2nd. A referendum vote by correspondence is being taken among the members of the Association and the result of this vote will not be known for a day or so. The change from Deadwood, South Dakota, was made in deference to the very general opinion that because of the war it would be advisable to hold the meeting in the east rather than in the far west.

Feeds and Foods Interdependent.

Among those who are in position to help solve the present food problem are the manufacturers of stock feeds, who supply farmers with a commercial feed, which as a general thing consists of alfalfa, low grade molasses, flaxseed, weed seeds, and the broken grains of cereals sold by millers as "screenings" Commercial stock feeds are carefully balanced rations and are in constantly increasing amounts being used as a substitute for corn or oats. Anything which relieves the strain upon those cereals which are suitable for human food is to be commended, and it is gratifying to realize that the members of the commercial stock feed industry are fully awake to the importance of their product and to the part it can play in the present situation.

Dehydration.

One of the oldest methods of preserving food from a time of plenty to a time of scarcity is that of drying. Even now when bulk is important dried foods such as pemmican, desiccated milk, soup tablets and the like are carried by explorers, soldiers and others. During the past 50 years canned foods because of their many superior qualities have, with the exception of a few staples such as dried apples and similar products, driven dried foodstuffs from the market. This year, however, with an acute scarcity of containers in prospect, there is every reason to believe that the old-fashioned process of drying food in order to preserve it will be revived. In the July issue of this JOURNAL there will appear an article descriptive of the latest and one of the best systems of dehydration.

Public Hearing on Dairy Products.

On June 12th and 13th there will be held in the Hotel Sherman of Chicago public hearings on tentative standards for milk and milk products. These hearings will commence each morning at ten o'clock and will be held under the joint auspices of a committee consisting of a representative of the United States Department of Agriculture, the Official Agricultural Chemists and the Association of American Dairy, Food and Drug Officials. This committee desires to obtain from the trade and from all others who are interested their views as to the fairness of the suggested definitions and standards for milk and cheese printed elsewhere in this issue. The committee also desires information as to what shall be the standard for butter. In the latter connection many possibilities present themselves. Shall butter be defined in terms of butter fat; or moisture; or butter fat and moisture; or butter fat, moisture and casein; or butter fat, moisture, casein and salt? All who are interested are cordially invited to attend the meeting.

Federal Food Legislation.

At the time of going to press the several food bills which were before Congress a month ago are still being considered, certain changes in their wording having been announced from day to day. Probably several weeks will elapse before all of the administration's many requests for power are granted by Congress. It would appear that the effort to have the President empowered to establish food standards has been abandoned, and it is also reported that the administration's request for permission to mix flours, at present practically prohibited by the mixed flour law, is not to be granted. If the wheat millers have, as it is reported, been successful in maintaining their point, which in effect is that bread-making flour should be limited to wheat flour, and have had this section stricken from the Lever Bill, their success is most eloquent testimony to the power of collective effort when skilfully directed in favor of a single industry.

Federal Indictments Against Egg Dealers.

On the 2nd of this month the Federal Grand Jury returned indictments before Federal Judge Kenesaw M. Landis against twenty-five individuals and firms connected with the Chicago Butter and Egg Board, the following individuals and firms being named:

Owen D. Gilman, Charles J. Bowman, S. Edward Davis, Don B. Kilbourne, S. Love Kelley, Frank M. Heggie, Frank J. Sokol, Louis Lepman, Horace I. Lepman, Meyer H. Eichengreen, Charles B. Ford, Harry H. Feilchenfeld, Theodore Aaron, Marshall L. Brown, Jesse L. Oxley, Louis Richter, O. D. Gilman & Co., Marsh L. Brown & Co., The Davis-Kilbourne Co., The Oxley & Richter Co., The S. Love Kelley Co., The F. M. Heggie Co., Lepman & Heggie, Bowman & Co., Inc., and Feilchenfeld & Aaron.

The foregoing indictments are the result of many weeks' work on the part of Special Attorney General Robert W. Childs. Evidence brought to the attention of Mr. Childs convinced him that the Sherman anti-trust law was being violated by certain activities of the butter and egg dealers and the grand jury acted in accordance with his recommendations. While there is a very real difference between an indictment on the grounds of conspiracy and a conviction, many in the food industry have for some time been convinced that the Chicago Butter and Egg Board was laying itself liable to just what has now happened. The fact that the Board less than twenty-four hours previous to the return of the indictments voluntarily abolished all traffic in future sales of eggs and butter is in itself significant. The trial of those under indictment bids fair to be one of the most important legal activities ever undertaken by the Federal authorities. According to the indictment, members of the Board are accused of fraudulent manipulations of the market the effect of which was to advance eggs to an abnormal price and also of having adopted the practice of making fictitious purchases and sales without intending that the eggs should be delivered, the inevitable effect of which has been to establish prices for eggs throughout the United States higher than the true market price. There are many who will question the soundness of this prosecution. It has already been claimed that this action upon the part of the Federal authorities is an effort to crucify egg dealers in order to satisfy the popular demand for a victim for the prevailing high prices of foodstuffs. On the other hand, many well-posted people seem to be of the opinion that, however this trial may terminate, its conclusion will leave the butter and egg situation in better condition than has been the case for several years past.

Missouri's New Food Commissoner.

Governor Gardner of Missouri recently appointed as Commissioner of the Food and Drug Department of that State Dr. E. L. Barnhouse, who until that time had been Deputy Commissioner under former Commissioner Fricke. This appointment is a well deserved recognition of the excellent work done by Dr. Barnhouse while a member of the former Commissioner's official family. Commissioner Barnhouse has chosen as his Deputy R. E. L. Marrs, his present staff inspectors being Messrs. G. B. Cook, Frank Mautz, C. N. Spencer, M. P. Moody, F. E. Kidwell, and A. J. Slack. In a recent conference with Missouri's new Food Commissioner he stated that he expected to work as far as possible with the women's civic organizations and the press, both agencies being considered aids to effective action in connection with the control of food.

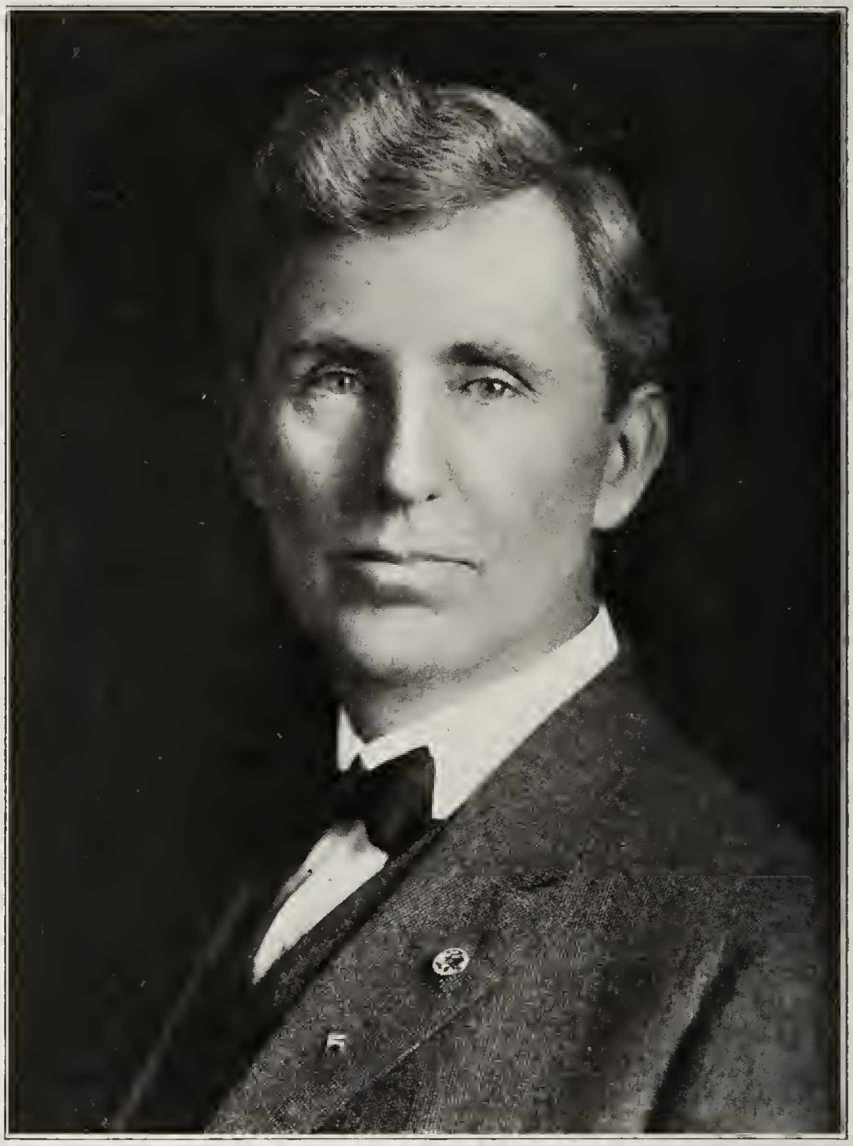


Photo by T. Kajiwara.

DR. E. L. BARNHOUSE.

Containers.

The Bureau of Standards of the U. S. Department of Commerce has of late had much to say as to substitutes for tin cans. This should not be regarded as in any way a criticism of the tin can as a container, which type of container has long since proven its worth. The present activity in favor of fibre and other containers is due entirely to the shortage of steel and tin. Tin plate is 98 per cent steel and 2 per cent tin.

Both of these metals are important ingredients in many metallurgical products used in war. There have been decreased importations of pig tin due to decreased production and shipping facilities and all available steel is needed for ship-building and other heavy duty activities. We cannot build sea-going ships of paper, but we can sell many dry food products in packages other than those made of steel and tin. At present the situation seems to be that the available supply of tin cans is to be utilized insofar as possible for packing products that can be preserved only in tin, and that substitutes should be used for other products wherever practicable. Glass would undoubtedly be used instead of tin for many food products but for the fact that the price of glass has steadily risen and has now reached a point at which any large extension of its use for food containers is impracticable. Paper containers may be made on the premises, as an article in this issue indicates, or may be obtained at prices ranging from 1.25 to 1.5 cents for an 8-ounce container, 1.25 to 1.6 cents for a 16-ounce container, and from 1.5 to 1.65 cents for a 32-ounce container. For those packers of dry products who are opposed to the adoption of paper containers because of advertising goodwill based upon the style and shape of a tin container, paper containers having a tin top and bottom are available. These containers when labeled have the appearance of all-tin cans. Fibre containers coated with paraffin are obtainable and are recommended by the Bureau of Standards for the distribution by retailers of such products as milk, ice cream, oysters, syrups, preserves, jellies, vinegar, soda water and olives. Paper bags lined with tinfoil have for many years been used by some manufacturers for marketing dry food products such as tea, coffee, baking powder, spices, raisins and prunes. Wooden barrels are recommended for molasses wherever retail sales can be made from bulk. Wherever food must by its nature be sterilized in the container at or above the temperature of boiling water no satisfactory substitute for tin has been found. While that type of food known collectively as canned goods is not provided for in the foregoing list of substitute containers, if tin containers are used only where the nature of the food itself demands it a vast amount of tin plate will be released for the use of the canners.

Present Oleomargarine Law Unsatisfactory.

The publicity being given to the need for revision of the law controlling the manufacture and sale of butter substitutes has aroused considerable interest among those most deeply concerned with the sale of oleomargarine, the leading substitute for butter. Dr. Frank H. Edsall, Superintendent of Health of Jersey City, although "somewhat interested in some dairy farms," so aptly expresses the point of view of the interest of the consumer that a letter from him recently received by this JOURNAL is herewith printed verbatim.

R. G. Gould, Editor,
The American Food Journal,
Chicago, Ill.

Dear Sir: In connection with the effort to secure the repeal of the surtax on colored oleomargarine and the argument advanced that permission to sell colored oleomargarine even in unbroken packages would result in fraud I would like to add my testimony as a city official who has to meet the problems which come up in food control work, that the present Federal law does little or nothing to prevent the fraudulent sale of oleomargarine to the ultimate consumer.

Recently out of seventy samples taken in one day by the inspectors of the Food and Drug Inspection Division of this Bureau, all of which were purchased as best creamery butter, eight of these samples proved to be oleomargarine on analysis, and inspection of the tub from which the sample was taken showed the Government oleomargarine stamp. This, then, protected the retailer from getting something less than he desired but furnished no protection of this kind to that sorely misused individual the ultimate consumer. I am firmly convinced that the only way by which he can be safeguarded is through the method provided in the Underwood bill. Certainly under such a provision there would be far less fraud than at present.

This is not theory but practical, every-day experience which leads to this conclusion. If, now, fraud can be better eliminated by doing away with bulk containers and requiring all oleomargarine to be sold in the original, unopened container wherein lies the justification for the prohibition of coloring for oleomargarine and does not the Federal surtax on this become merely a bounty to the buttermaker which the Government has no right to levy?

My personal pocketbook interest in this matter would lead me to take sides with the buttermaker as I am somewhat interested in some dairy farms, but having never come across any unprejudiced research work to demonstrate any material difference in nutritive value between butter and oleomargarine I feel it to be a wholly unwarranted discrimination against the consumer in these times of painfully high cost of living to continue the surtax on colored margarine or the prohibition on its sale.

It seems like class legislation of the rankest kind. I am, Very truly yours,

FRANK H. EDSALL, *M. D., D. P. H.*,
Superintendent of Health.

Nutritive Value of Mixed Flour.

Not long ago the Committee on Agriculture was given an interesting dissertation on food values by no less an authority than Mr. Francis M. Phelps, attorney-at-law and counsel for the Millers' National Federation. It happened that one of the administration's proposed measures—that of the nullification for the duration of the war of the mixed flour law—was under discussion and Mr. Phelps, very naturally, wanted to do what he could to inform the Committee on Agriculture as to the dietetic value of wheat flour as compared with mixed flour. Let it be understood that Mr. Phelps is a good citizen who agrees with the rest of us that it is the duty of every loyal American to give governmental authorities very wide powers during the present food crisis. From his colloquy with Chairman Lever it would appear that Mr. Phelps would not attempt to curb the President should he seek to prohibit the use of cereals in the manufacture of whiskey; nor would he deem it loyal to attempt to prevent the President's closing speculative exchanges which deal in food; nor would he hamper efforts aimed at the suppression of food hoarding and matters of that sort. It is only when the Government's suggestion that the intelligent mixing of various flours be permitted under proper control that he raises his voice in protest. Here, then, is the last word in regard to the food value of mixed flour as expounded by an attorney-at-law:

> "Wheat flour contains practically the same amount of starch that pure milk contains of water. * * * Now, this bill by this provision would operate in exactly the same way as if you told a dairyman that there is a big shortage in milk here in the city, and that you wanted to add to the milk supply 5, 10 or 15 per cent more water so as to enable you to spread the supply out. * * * That (*adding starch to wheat flour*) would be reducing the protein content of the flour, which is the valuable content and the mineral content which builds the bones in the body, just that much, and **it would not be adding any food value at all.**"

Mr. Phelps may properly now be considered a full-fledged member of the wheat flour school of dietitians, who insist upon expressing all dietetical matters in terms of wheat. That most excellent cereal—like all other cereals—is mostly starch and is highly esteemed on that very account. If the food value of wheat flour were limited to its protein content—which it isn't—it would be a mighty poor buy. At present prices the protein of wheat costs, in the form of flour, about 80c a pound—far too much for vegetable protein even in these days of expensive nitrogenous food. In his quite untenable comparison of wheat flour and milk Mr. Phelps is doing his clients an injustice. The fuel value of the water in milk is nil, whereas of starch the fuel value—and that is what adults need far more than they need protein—is exactly the same as the fuel value of protein. Among dietitians generally wheat flour is regarded as an essentially starchy food, the mechanical properties of its protein content being of value in the aeration of certain types of baked products. No one would belittle the value of wheat flour; but by the same token there is nothing sanctified about wheat or its products. The subject under discussion is the possibility of increasing, by the expedient of mixing flours, the available supply of a starchy food. The Lever Bill—which is the voice of the administration—is not seeking a single-unit balanced ration. It is based upon the known fact that dietitians generally, other than Mr. Phelps, are of the opinion that once the very moderate amount of protein demanded by the adult human is provided for all additional food required because of hard muscular work, such as fighting in the open, should be supplied by either carbohydrates or fats. Anyone who can bring himself to state that the addition of starch to a food product *"would not be adding any food value at all"* should seek knowledge as to food values rather than attempt to speak in public on that subject.

Food Commissioner Newman of Illinois.

Former Assistant Food Commissioner John B. Newman has been proffered the post of chief of the new Department of Foods and Dairies recently formed by Governor Lowden. The new Governor of Illinois has effected comprehensive changes in many of the state offices in an effort to increase efficiency and reduce expenses, but as far as the food commissionership is concerned the change is one of name rather than of function. Mr. John B. Newman was born in Elgin, Illinois, and was graduated from the University of Michigan law school in 1892. He comes of a family of dairymen and is himself more interested in dairy products than in any other type of food. Not all of Mr. Newman's friends know that some few years ago when the New York City Department of Health held a competitive examination to fill the post of Director of the Bureau of Foods Mr. Newman took the examination and passed with flying colors, being third on the list. He is a director of the Illinois State Dairymen's Association and has devoted much thought to the matter of uniformity in legislation affecting milk and milk products. He has also as Assistant Food Commissioner acquitted himself well in the enforcement of food laws of general nature, and his selection as Food Commissioner will be well received by all branches of the food industry.

JOHN B. NEWMAN,
Food Commissioner of Illinois.

Comparison of Retail Food Prices.

Not the least important page in this issue is the one devoted to a tabulation of the retail prices being asked on June 1st in different parts of the country for about fifty staple foodstuffs. The first two columns on the page are of particular interest in that they show approximately the average price being asked for the commodities under discussion and also show the cost in cents of 100 calories. All computations were based upon recognized governmental standards and apply to edible portions merely. The chart will be corrected monthly.

A Legal Butter Color

By The Editor

In view of the fact that dairy products are soon to be legally defined and standards therefor promulgated by the United States Department of Agriculture, the subject of the artificial coloration of butter is of more than ordinary interest. It is, of course, well known that practically all commercial butter is artificially colored. For one or two months of the year—in the late spring, when the grass is greenest—the color of natural butter is sufficiently yellow to please the eye and to satisfy market demands. During the balance of the year—from nine to eleven months—recourse must be made to artificial coloration if the creameries are to turn out a product which shall have the brilliant color of June butter. This artificial coloring of butter is winked at by the powers that be, presumably on the ground that the custom is one hoary with age and therefore entitled to the special consideration sometimes accorded primitive customs. Needless to say, all colors used in butter, or in any other food, are harmless. At present the most popular butter color is annotto, carried in cottonseed oil, the customary amount employed being 4 fluid ounces of color-impregnated oil to 1,000 pounds of butter.

No longer ago than May 8th of this year Letters Patent No. 1,224,910 were granted to Mr. Carleton Ellis of Montclair, New Jersey, the subject matter of the patent being "Color Concentrate for Edible Oil or Fat Compositions," Mr. Ellis having secured on November 7, 1916, Patent No. 1,203,594, its subject being "Color Concentrate for Edible Fats." The two patents considered together cover edible fats, edible oils and edible fat compositions. As recited in the preamble of both patents the purpose is to provide a coloring agent wholly compatible with ordinary butter and one which can be employed in genuine butter without modifying the standard of fat or throwing it open to criticism from the standpoint of adulteration. The vehicle to be employed for carrying the dyestuff or coloring matter is butter oil. A part of the patent is devoted to the method by which the butter oil is to be prepared from ordinary butter, full directions for its manufacture being given. Particular attention is directed to the matter of so treating the butter oil as to render it free from the danger of turning rancid. Mr. Ellis is a recognized authority on the subject of edible fats and oils and those who are acquainted with his work will probably be content with his statement that "*butter oil is highly satisfactory both as a solvent for the coloring matter and as to its blending qualities in the butter material which is to be colored. It incorporates with butter in a highly satisfactory manner, disseminating the coloring material throughout the mass effectively. When butter oil is freed from moisture in the manner described and charged with coloring matter a product is obtained which is quite stable and which may be preserved in containers for a considerable period of time without any substantial deterioration.*"

The fact that in the preamble of this interesting patent is found the statement that this new form of butter concentrate can be used in genuine butter without subjecting it to criticism from the standpoint of adulteration naturally attracts one's attention to that phase of the matter. Let us see upon what Mr. Ellis bases his statement.

In the regulations concerning oleomargarine revised July, 1907, the Treasury Department, speaking through the Commissioner of International Revenue, defines butter as follows:

"*That for the purpose of this act the word 'butter' shall be understood to mean the food product usually known as butter, and which is made exclusively from milk or cream, or both, with or without common salt, and with or without additional coloring matter.*"

A few paragraphs further on when discussing coloring matter in butter the following statement is made:

"*The mixture of butter with coloring matter does not, under this law, render it liable to tax as oleomargarine, such mixture being permitted under the definition given in the first section. If, however, the annotto or other coloring matter is mixed with a vegetable oil or an animal fat other than butter fat as a mordant, resulting in a compound resembling butter. this compound would be liable to the tax of* 10 *cents per pound as oleomargarine artificially colored when manufactured and sold or removed.*

"*It has been urged that the quantity so added would be minute, and that a portion at least would also be lost in the buttermilk, etc. A number of samples known to have been colored with a butter color, in which oil was used as a mordant, have been examined in this office without resulting in the discovery of any foreign fat or oil.*

"*Under the circumstances, collectors are advised, before levying the oleomargarine tax upon butter so colored, to submit a sample for the inspection of this office, provided the coloring matter in the suspected butter is the only ground for the belief that it is oleomargarine.*"

Here, evidently, is the basis for the Ellis patent. Upon the authority of the Commissioner of Internal Revenue the fact is recognized that the use of vegetable oil as a vehicle for coloring matter automatically classifies butter so treated as oleomargarine. The Commissioner, however, advises all collectors to submit samples of butter, so transformed to oleomargarine, to the Office of Internal Revenue before taking action. In other words, he nullifies by official promulgation the ruling that the admixture with butter of a minute quantity of cottonseed oil transforms that butter to oleomargarine.

In this connection it should be borne in mind that in prosecutions instituted by the Treasury Department there is no such thing as the "rule of reason." Revenue laws are construed strictly, as many a manufacturer of products other than butter can well testify. The fact that but 4 fluid ounces of an admittedly illegal ingredient is used to each thousand pounds of finished product would by no means be accepted as a defense against prosecution in the case of the average food product. Officials of the U. S. Treasury Department and the courts have repeatedly held that in revenue matters the question of intent cannot be considered. All articles manufactured under the control of the revenue laws are manufactured at the peril of the manufacturer. If in the progress of chemistry new tests are developed whereby proscribed ingredients may be detected, seizures based upon the use of such tests are made without compunction. In fact, if there is any food product, other than butter, which has had obnoxious regulations nullified in its behalf by official promulgation, this JOURNAL has yet to learn of it.

The way out of the dilemma is apparent. While many butter manufacturers will, no doubt, be glad to make use of the Ellis concentrate there would seem to be no real reason why vegetable oil should not be used as a vehicle for the dry coloring matter. But to bring this about it would seem to this JOURNAL that the proper course would be to so amend the official definition of butter as to provide for the use of small amounts of oils or fats other than butter oil when used simply as a vehicle for color. Any official nullification of the plain, unvarnished truth is unfortunate. Undoubtedly many an inspector has watched cottonseed oil, charged with color, being poured into a butter churn, has realized that upon the authority of the Commissioner of Internal Revenue such action renders the butter subject to a tax of 10 cents a pound as artificially colored oleomargarine, but has refrained from action in conformity with the regulations concerning oleomargarine despite the fact that the evidence of his own eyes is proof that technically the product is oleomargarine and not butter. This sort of thing has been going on since 1902.

As a matter of fact, although the manufacture of butter is controlled by the revenue laws, the interpretation of these laws as they affect butter has for many years apparently been marked by an obvious intent to make the rulings as liberal as possible—despite the fact that the revenue law itself is one which must be strictly construed in all particulars. Rulings of the Treasury Department as they affect butter and in regard not only to this point of the incorporation with butter of vegetable oil, but also the matter of neutralization of sour cream by alkali and the highly important point of moisture content have been based in no instance upon duly submitted opinions of the solicitor of the department or of the attorney general or upon court decisions. It is quite safe to assume that had this law been as strictly enforced as are all other revenue laws, the definition of butter would long since have been altered so as to reflect the actual state of affairs. It would be of interest to know what commercial butter makers think of this situation.

Fraudulent "Egg Substitutes" and "Egg Savers"

By Charles H. LaWall,
Associate Professor of Pharmacy, Philadelphia College of Pharmacy; Professor of Organic Chemistry, Wagner Free Institute of Science, Philadelphia; Chemist to Pennsylvania Dairy and Food Commission.

ONE of the most reprehensible ways of making money is to take some common, everyday substance, disguise or alter its appearance in some way, make a lot of exaggerated statements regarding it and then sell it for about ten or fifteen times its market value, extolling it as an economical substitute for some still more expensive article. Such a condition of affairs has existed both in Great Britain and in Germany for several years, in foodstuffs, according to stories of returned travelers and some few published accounts appearing in scientific journals from time to time.

In this country the condition has long been prevalent in the line of drugs and cosmetics. To give a concrete example, clever and conscienceless advertisers have taken Epsom Salt, colored it pink, have given it a proprietary name, advertised it as some wonderful kind of discovery and sold it for seventy-five cents or a dollar. It could have been purchased under its own name and in the same amount for five cents. So prevalent has this form of legalized swindling become and so cleverly have the advertisers and originators of these schemes constructed the names of their products to give them a semblance of plausibility and chemical individuality that the Board of Agriculture of Ohio has published four editions of a pamphlet entitled "What's In a Name?" in which more than one hundred of these products are described and exposed. Some other state authorities, as North Dakota, have done the same, but so limited is the circulation of these exposures (no newspaper and but few magazines daring to publish them for fear of losing advertising), and so great is the credulity of the consuming public that the number of these preparations grows constantly and the magnitude of the business done by their promoters is on the increase at the present time.

A celebrated American, P. T. Barnum, once assigned the correct reason for this condition, which reason still obtains, particularly in the line of cosmetic and toilet preparations, which, being neither foods nor drugs, are amenable to no law and now constitute the limited territory into which have been driven those artistic disciples of Mendax I, who formerly roamed at large over the entire region of foods and drugs as well.

During the past year or so there have been evidences that food products of similar fraudulent character have been advertised and sold in a limited way, often through a house-to-house canvass by agents rather than through the ordinary channels of retail trade. The particular line of products to which I refer and of which no less than fourteen differently named articles have been submitted to me for examination within a year, have been called "Egg Substitutes" or "Egg Savers." This nomenclature in almost every instance is deceptively constructed, the word egg being used as one of the syllables in such a way as to create the impression either that the product contains egg as one of its component parts or is a perfect equivalent and substitute for eggs in all respects. This is further contributed to by the phraseology of the directions, which is intentionally misleading in most of them.

The composition of all that have been examined has been very simple and the ingredients comparatively inexpensive. Some form of starch, usually cornstarch or sometimes rice starch, constitutes the bulk of nearly every one of them and along with the starchy ingredient are one or more of the following substances: Powdered gelatin, powdered casein and, in a few, a little powdered egg albumin or powdered dried egg. In every case a coloring matter was present to give the resulting baked product a deceptive appearance as of the richness of eggs. In practically every case the amount sold for 25 cents was somewhere between 2 and 4 ounces and the directions stated that each teaspoonful of the product represented one egg in baking and cooking, the package claiming to be equivalent to 2 or 3 dozen eggs.

So numerous have these articles become in some parts of the country that in the Bulletin of Service and Regulatory Announcements No. 17 of the U. S. Department of Agriculture, Bureau of Chemistry, the attention of manufacturers is called to the fraudulent character of some of these products, the Bureau holding that an article should not be labeled "Egg Powder" which does not consist actually of eggs and should not be labeled "Egg Substitute" unless it possesses the properties of eggs.

To understand the reason for the appearance of these powders on the market, it is necessary to consider what part eggs play in cooking apart from their nourishing qualities, for it must be evident, even to an untrained observer, when he stops to reflect, that from 2 to 4 ounces or less of a yellow powder cannot possibly represent the nutriment of 2 or 3 dozen eggs. When eggs are used in doughs, batters, etc., it is usually for the sake of the leavening effect which they contribute or for their coagulating or thickening properties. The leavening property is due to the viscosity of the egg which entangles air bubbles and holds them in the batter or dough until the subsequent heat of baking sets or coagulates the egg and brings about a permanent condition of lightness in a product which has been beaten or mixed with baking powder or other leavening agent, or a custard-like character in an unbeaten product. A very convincing household test of this leavening quality of eggs may be carried out as follows: In each of two tumblers place a quarter of a teacup of water. Add to one of them a teaspoonful of egg white and mix thoroughly. Now add to each of the solutions a teaspoonful of baking powder. In both of them the characteristic effervescence will take place, but in the one with the plain water this will quickly subside, while in the one to which the egg has been added the foam will rise high in the tumbler, sometimes reaching the top, and remaining permanent for some minutes.

Now, there are a number of other substances that will take the place of egg to a greater or lesser extent, so far as these culinary properties are concerned. Cornstarch or any other starch will contribute the thickening properties, while powdered gelatin, albumen or casein will contribute more or less of the leavening qualities owing to the viscosity communicated to the dough or batter to which they are added. All of these ingredients are wholesome and legitimate articles of food and if sold at a fair margin of profit and with no exaggeration of statement as to composition or use, they might be tolerated for the sake of those consumers who are too ignorant or lazy to make such products for themselves or use the substances already at hand which serve the purpose. The following statements are quoted from the claims on the labels and wrappers of some of these products which have been submitted to me and illustrate how little regard for the truth their originators have and into what misleading forms half truths may be distorted: "Pure and wholesome; convenient to use; very economical"; "This substitute is fully equal in baking or cooking to the best fresh eggs"; "Costs about one-third as much as eggs"; "Cut the high cost of living"; "Contents of this package can be used in place of 3 dozen eggs"; "Price 25 cents; contents equal to 3 dozen eggs"; "A substitute for eggs"; "A wholesome and harmless substitute for eggs in baking and cooking"; "The contents of this can is to be used in cooking and baking in place of 3 dozen eggs"; "For each egg called for in the recipe you are using, use one even teaspoonful of ——— dissolved in one tablespoonful of warm water, beat up and then mix with the other material used"; "——— is used in cooking and baking for nearly all purposes where eggs are used"; "Use in place of 3 dozen eggs"; "Use ¾ teaspoonful in place of each egg required." One product only, frankly stated the following: "A compound of cornstarch and casein artificially colored." Another boldly said "Absolutely no eggs used in the manufacture of this product."

From the purely culinary standpoint of leavening or thickening properties, these egg substitutes are probably satisfactory products, in many respects, but why pay fancy prices for a mixture of 3 parts of cornstarch and one part of powdered gelatin, which are articles found in every household? This was the composition of several of the specimens examined, exclusive of the coloring matter. The powdered casein and powdered egg albumen mentioned as used in some of them are not commonly found in households, but are easily obtainable by those who wish to experiment with them.

From the standpoint of nutritive value the advertising literature of all of these products is strangely silent and leave it to be inferred by the purchaser that the article is equal in this respect to the number of eggs claimed. A comparison will show what a cruel and unjustifiable deception this is.

An egg of average size has a nutritive value equal to 75 Calories (a Calorie is the unit value of foods and corresponds to the energy or heat value necessary to raise the temperature of 1 pound of water 4 degrees Fahrenheit). Three dozen eggs would have a total food value of 2,700 Calories. A mixture of any of the ingredients mentioned has a nutritive value of 100 Calories for each ounce. Therefore, 4 ounces, the largest amount found in any one of the packages, would have a nutritive value of less than one-sixth that of the number of eggs it claims to replace. In most of them the ratio was less than this.

To replace any article of the daily dietary with a product costing, we will say, one-third as much, but having one-sixth or one-eighth of the nutritive value is certainly not in the interests of the consumer nor a real blow at the high cost of living.

The presence of the artificial coloring found in every one examined, usually one of the colors legally permitted under certain conditions, adds another element of deception and unfairness which should be understood by the purchaser. A yellow color is used to give a deceptive appearance of egg richness. Cakes baked with the use of such egg substitutes, in which eggs are absent but a color simulating the appearance of eggs is present, are illegal for sale, for such articles violate the provision of the food law which states that "an article is adulterated if it be colored so as to make it appear better or of greater value than it really is." It is a just and wise provision of the law, protecting the consumer from imposition on the part of a baker who, by the clever use of color, could otherwise sell an article having little nutritive value at the price of the genuine product it is intended to resemble. This provision of the law also protects the conscientious baker from an unscrupulous competitor. It is certainly not in the interests of the consuming public to teach them to deceive themselves by the use of products in the home which would be illegal if sold in the ordinary channels of trade.

At this time, while these products are in their infancy, the greatest possible light should be thrown upon them and upon their exploiters. The consumer should be taught to realize that she cannot get something for nothing and that substitutes are often more costly and less valuable than the more expensive products which they are advertised to replace. This is especially true where an article is not frankly and truthfully labeled so as to convey no false impression. If any one of the foregoing products had been labeled so as to show that it was not a complete substitute for eggs but was capable of replacing only some particular property of eggs, it would not have been objectionable, if not sold at an exorbitant price. Some substitutes are commendable and for those who know what they are getting, are entirely proper, such as glucose and oleomargarine. What is needed is a close supervision and rigid application of the enforcement of the laws so that all substitutes are not brought into disrepute on account of the impropriety of the few.

The Use of Mixed Flour in Making Bread

By E. H. S. Bailey and W. S. Long.

SINCE we are faced by the increased price of ordinary breadstuffs, an effort is being made in all directions to cheapen the product by a variation of the materials used. There would seem to be two ways of reducing the cost: First, by milling the wheat so as to get a larger proportion of bread-making flour from it; and second, to mix other cereals or starches with the wheat flour. Although the milling of flour so that it shall contain considerable bran may not be in favor with the millers, who are accustomed to market a high-patent flour, yet this flour ought to be considerably cheaper than if only 71 per cent of flour be milled from the wheat. If the lower grade of flour proves to be equally nutritious it may be necessary, in the interest of economy, to use it. Some experiments have been made with mixtures of a special low grade flour with a patent flour in the making of bread. The bread was made in the ordinary way, and with the following per cents of each grade:

	No. 1. Per cent.	No. 2. Per cent.	No. 3. Per cent.	No. 4. Per cent.	No. 5. Per cent.
Low grade	0	25	50	75	100
Patent	100	75	50	25	0

BREAD MADE FROM LOW-GRADE WHEAT FLOUR.

	Patent flour. Per cent.	Special flour. Per cent.	Moisture. Per cent.	Ash. Per cent.	Ether extract. Per cent.	Protein (N X 6.25). Per cent.	Carbohydrate (by difference). Per cent.
Flour.....	...	...	8.54	0.45	1.35	13.12	76.54
Special...	...	...	9.81	0.67	2.72	15.13	71.67
Bread....	100	0	32.08	0.82	1.28	9.48	56.34
Bread....	75	25	31.78	0.50	1.26	10.52	55.44
Bread....	50	50	33.77	0.88	1.85	10.57	52.99
Bread....	25	75	34.44	0.58	1.87	10.38	52.73
Bread....	0	100	34.74	1.46	1.78	10.55	51.47

Illustration No. A shows the loaves made, reading from left to right. There is evidently not much difference in the texture. Of course it would have been possible by a different method of making to have improved the texture of all the samples. The analysis shows an increase in the per cent of moisture, ash and fat, as would be expected. The low grade flour sells at a slightly lower price by the hundred pounds than the straight patent, but it is a question whether the difference is great enough to warrant using the mixture.

The other method of cheapening the cost of the loaf presents a more encouraging prospect, because there is quite a variety of materials that may be used to mix with the high-grade patent flour. In fact it has been very wisely said that the highest patent flour is not necessary for the mixture, as we do not expect to obtain a perfectly white bread. The use of this lower grade of flour should further decrease the cost of the loaf. Among the materials used may be mentioned rye, oats, corn meal or corn flour, durra, millet, Kafir corn, rice, barley, alfalfa, and even potatoes.

The use of rye bread and of a mixture of wheat and rye, or of corn meal and rye, are so common both in this country and abroad that they need not be discussed. Some recent experiments by the Department of Agriculture (this Journal, 12, page 201) show that an excellent bread can be made with a mixture of 25 per cent of corn meal with 75 per cent of wheat flour. The loaf is of course of smaller volume than that made from wheat flour, but it is light, porous, wholesome and very palatable.

Some experiments made by Caselli in Italy (Chem. Abst., vol. 10, p. 1236) show that durra flour, made

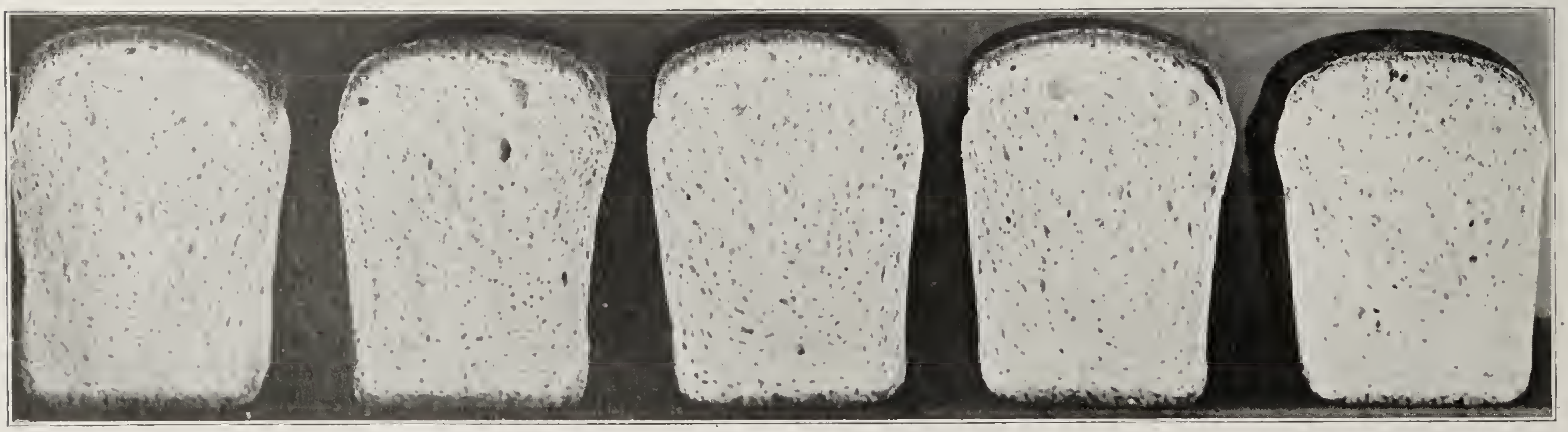


FIGURE A. BREAD MADE FROM LOW GRADE WHEAT FLOUR.

from the seed of a variety of sorghum, if mixed to the amount of 25 per cent with wheat flour, makes an excellent bread. It is said to be of better flavor than that made from mixtures with rye, rice or potatoes. The bread has the following composition: Starch, 50.79; fat, 0.44; protein, 8.37; water, 35.25; ash, 1.66; fiber (by diff.), 3.55. As much as 79 per cent of flour may be made by milling the grain. The protein content of this flour as compared with corn is 7 to 4.

Millet, although not used in the United States as food for man, is the staple diet of the inhabitants of the Upper Nile, and is so extensively used in southern Europe and in the East that it is estimated that it feeds one-third of the inhabitants of the earth. Millet may be mixed with wheat flour to make a very palatable bread.

Kaffir corn is also edible for human food (Chem. Abst. 22, p. 2394). The meal made from this seed can be used in practically every case where corn meal would be used. It is rich in starch but deficient in protein. It may, however, be used in the proportion of 50 per cent with wheat flour for making bread.

Barley is another grain that has not come into common use for human food in America. With the probable embargo on the use of barley for making alcoholic liquors, a large amount of this grain will be available for human food, as 237,000,000 bushels of this grain was raised in 1915. A recent number of the British Medical Journal states that the government regulations now permit millers to add in small proportions to wheat flour, that made from barley, corn, oats or rice. Barley and corn are considered the best to use, from a dietetic standpoint. All things considered, barley is regarded as the most suitable substitute for wheat. Although it is low in gluten, probably as much as 10 per cent can be used for mixing with wheat flour without seriously lowering the nutritive or digestive value of the bread.

A crushed and rolled potato product, in the proportion of 20 per cent of potato to 80 per cent of wheat flour makes as good a bread as that made entirely from rye. As so much water is absorbed by the starch of the potatoes, there is danger that the loaf be soggy if too large a quantity of the potato product be added to the wheat. Potatoes with grains are used in making the "War Bread" of Germany.

The bread used in the French and some other foreign armies contains 10 per cent of rice flour (Chem. Abst., 4, 1635). In the bread supplied to the Japanese army, to this is added from 12 to 15 per cent of sugar to increase the food value and palatableness. A ration of 675 grams of this bread is daily issued to the men.

Oats, although deficient in the peculiar kind of gluten occurring in wheat, is such a valuable food for man that its use in mixture with wheat flour should not be overlooked. The annual production in this country is 1,500,000,000 bushels. As the total protein and fat are both high, the nutritive value of a product made from a mixture of oats and wheat flour will be considerably raised.

Some preliminary experiments have been made on the adaptability of this cereal for use in bread making. As there was no so-called oat flour available on the market, the ordinary bulk breakfast oats or crushed oats was ground as fine as possible in an ordinary experimental mill such as is used in a flour mill laboratory. This was mixed with a high-grade patent flour in the following proportions:

	No. 1. Per cent.	No. 2. Per cent.	No. 3. Per cent.	No. 4. Per cent.	No. 5. Per cent.
Oat flour	0	10	20	30	40
High patent	100	90	80	70	60

The illustration "B" shows the relative size and structure of the loaves obtained, reading from left to right. As in the case of the wheat bread, a different texture might no doubt be obtained by a variation in the process of making the bread.

BREAD MADE FROM WHEAT AND OAT FLOURS.

	Patent flour. Per cent.	Oat flour. Per cent.	Moisture. Per cent	Ash. Per cent.	Ether extract. Per cent.	Protein (N X 6.25). Per cent.	Carbohydrate (by difference). Per cent.
Flour.....	...	...	8.54	0.45	1.37	13.12	76.54
Oats......	...	...	6.51	2.16	7.42	16.5	67.41
Bread....	100	0	33.13	.529	2.32	9.45	54.51
Bread....	90	10	33.44	.764	2.62	9.55	53.58
Bread....	80	20	33.20	.834	2.86	9.65	53.46
Bread....	70	30	32.97	.967	3.15	9.8	53.11
Bread....	60	40	35.15	.997	2.92	10.1	50.83

As would be expected, as the proportion of wheat gluten diminishes the loaves decrease in volume and are more compact. All samples are, however, palatable. The oat bread mixture contains more moisture than does that made from wheat. As it contains an increasing amount of the outside coating of the oats it has an increasing amount of ash. As would be expected, the protein increases and the starch decreases as more oat flour is used.

Since at present prices wheat costs per bushel four times as much as oats, and since palatable and wholesome bread can be made by a judicious mixture of these two cereals, it would seem to be worth while, in the interest of economy, to encourage the use of some such mixture.

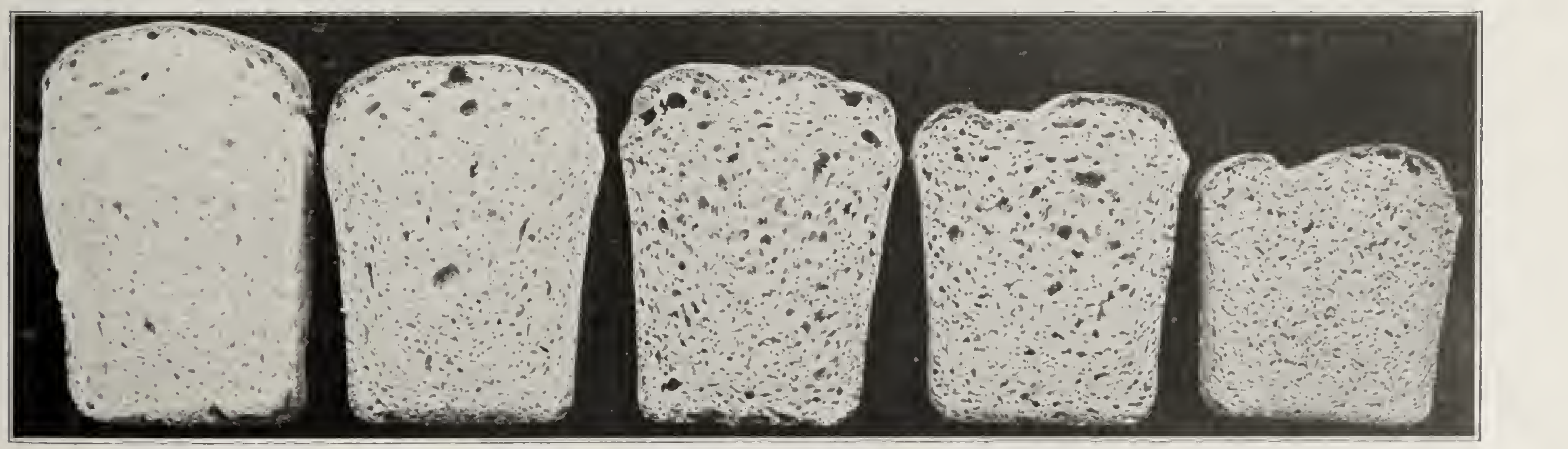


FIGURE B. BREAD MADE FROM WHEAT AND OAT FLOUR.

The Food Manufacturer and the Law

By Thomas E. Lannen and Thomas J. Hickey
of the Chicago Bar

In our former articles we have shown in a general way the status of State Court decisions on food laws prior to the enactment of the National Food Law, and in order to complete that phase of the subject in a general way, we set forth a resume of the more important decisions of the U. S. Supreme Court affecting food products, and which were rendered prior to the passage of the National Food Law, the same being taken from the State Food Commissioners' compilation which we have referred to in former articles:

DECISIONS OF THE UNITED STATES SUPREME COURT ON FOOD LAWS.

STATUTES, HOW CONSTRUED.—They are intended for the protection of public health and are within the police power of the state. Powell vs. Pa., 127 U. S. 678.

BUTTERINE; INTENT TO SELL.—An act forbidding the selling or having in possession with intent to sell butterine or any imitation of butter which is not colored a bright pink, and making the having in possession of the prohibited substances prima facie evidence of intent to violate the act, and authorizing its seizure is not unconstitutional. Armour Packing Co. vs. Snyder (Minn.) 84 Fed. Rep. 136.

FLOUR; RECOVERY OF PENALTY.—Under the act of this state of December 21, 1892, "regulating the importation of flour and bread," the penalty may be recovered in an action qui tam. In order to recover the penalty for altering the inspector's marks on barrels of flour the marks must be set out and the alterations shown. Unless the word "condemned" be branded on the package it is not within the tenth and fifteenth sections of the act. Cloud vs. Hewitt, 5 Fed. cases 1983.

INSPECTION; POWER OF CONGRESS.—Congress has no power to enact legislation as to inspection of meats, animals, or their carcasses, before or during their slaughter in slaughter houses within a state. United States vs. Boyer, 85 Fed. Rep. 425.

OLEOMARGARINE LAWS; VITALITY.—Statutes which prohibit the manufacture or sale of any article in imitation of butter or cheese are within the police power of the state. Powell vs. Pa., 127 U. S. 678; Walker vs. Pa., 127 U. S. 699; in re Brosnahan, 18 Fed. Rep. 62.

REGULATION OF SALE.—Where a statute has for its primary object the raising of revenue, and not the protecting of purchasers, it is not unconstitutional as being an infringement upon the police power of the state to levy a tax on dealers and manufacturers of oleomargarine and regulate its sale. United States vs. Dougherty, 101 F. 439.

OLEOMARGARINE OFFENSE.—Under the law requiring retail dealers in oleomargarine to pack the same in suitable wooden or paper packages, and to mark same as the Commissioner of Internal Revenue shall require, an indictment which charges the retail dealer with selling olemargarine in packages which are not put up in suitable wooden or paper packages is good. United States vs. Dougherty, 101 F. 439.

OLEOMARGARINE LAWS requiring manufacturers and dealers to put oleomargarine in packages marked and branded as the Commissioner of Internal Revenue shall prescribe does not constitute a delegation of power to that officer to determine what acts shall be criminal, because the law sufficiently defines the offense by requiring the packages to be marked and branded and by prohibiting the sale of those that are not, simply leaving the kind of marks and stamps to be determined by that officer. Ex Parte Kollock, 165 U. S. 526.

VALIDITY OF COLOR LAWS.—Held that it is a proper regulation for preventing fraud and deception and that it is within the police power of the state under the Sess. Acts 1895, p. 26, sec. 2, to prohibit the manufacture or sale within the state of any substance in "imitation or semblance of natural butter" or with which any substance has been combined "for the purpose or with the effect of imparting thereto a yellow color, or any shade of yellow, so that such substances shall resemble yellow or any shade of genuine butter" and that the enforcement of such laws against oleomargarine shipped from other states and sold in original packages is not a violation of the interstate commerce clause of the Constitution of the U. S. In re Schietlin, 99 Fed. 272.

OLEOMARGARINE; RIGHTS OF IMPORTERS.—Importers have the right to sell to consumers as well as to wholesale dealers oleomargarine in original packages. Schollenberger vs. Pennsylvania, 171 U. S. 1.

OLEOMARGARINE; COMMERCE. — Oleomargarine having been recognized by an Act of Congress as a proper subject of taxation, of traffic, of importation and exportation, must be deemed a proper subject of commerce. Schollenberger vs. Pennsylvania, 171 U. S. 1.

OLEOMARGARINE; COLORING.—A state statute prohibiting the sale of oleomargarine as a substitute for butter unless it is of a certain color, is unconstitutional as applied to oleomargarine imported into the state, as this would require its adulteration, the sale of which when so adulterated being prohibited by another law. Collins vs. New Hampshire, 171 U. S. 30.

OLEOMARGARINE; NATIONAL LEGISLATION.—National legislation on the subject of oleomargarine does not restrict the power of the states over the manufacture and sale of oleomargarine within their respective limits. The state statute preventing the sale of imitation butter in its application to sales of imitation butter brought into the state from others is not in conflict with the Interstate Commerce Act. A state may exclude from its market any compound, manufactured in another state, artificially colored or adulterated so as to cause it to look like an article of food in general use and thereby cheat the general public. Plumley vs. Massachusetts, 155 U. S. 461.

OLEOMARGARINE; INDICTMENT.—An indictment sufficiently charges an offense under the statute which alleges that a person, at a stated time and place did knowingly, wilfully, unlawfully and fraudulently remove a brand from a package containing oleomargarine. Wilkins vs. United States, 96 Fed. 837.

OLEOMARGARINE; DEALER'S LIABILITY.—A wholesale dealer of oleomargarine is not liable for the penalty imposed by the Act of 1886, even though he wilfully fails to keep a book showing the oleomargarine received by him and omitting to make monthly returns to the Collector of Internal Revenue. United States vs. Eaton, 144 U. S. 677.

OLEOMARGARINE; STATE JURISDICTION:—Held that the Governor of a Soldier's Home is not within the jurisdiction of a statute regulating the use of oleomargarine, and that the serving of the same in the Home is not within the jurisdiction of the state, because the governor of the soldier's home is under the control of the United States and wholly beyond the regulation of the state legislature. Re Thomas, 82 Fed. Rep. 304.

In the case of United States vs. Broadwell 195 U. S 65, and other oleomargarine cases, decided in the United States Supreme Court, the Act of Congress fixing a tax of ten cents a pound on all manufactured butter artificially colored to look like natural butter is held to be constitutional and properly within the granted powers of Congress. The decisions also hold that such butter cannot be manufactured and sold without paying the tax if it is colored in the process of manufacture by being mixed with natural butter, or other substance, which is colored itself and thereby imparts the prohibited color to the manufactured butter, even though such natural butter or other substance is a necessary ingredient in the manufacture of oleomargarine or manufactured butter. In other words, the decisions hold that it is not the process or method of manufacture, but rather the manufactured article to which the law attaches itself and applies.

Report of the Committee on the Conservation of Tin Plate.

The policy outlined in the circular letter signed by the Secretaries of Agriculture and of Commerce, and sent out under the date of April 6, was apparently subject to varied interpretations. It was therefore deemed necessary to call together representatives of the different industries concerned, with a view to outlining a more definite policy and deciding as to the need for the measures recommended in the circular, as well as any further measures of the same kind. Committees representing the tin-plate manufacturers, the can manufacturers, and the canning industry, as well as the president of the National Wholesale Grocers' Association, met in conference at the Department of Commerce on May 1. After considering the whole matter at some length, and listening to the views of certain of the more important packers of non-perishable foods only, the conferees appointed a subcommittee consisting of Dr. C. L. Alsberg, chief of the Bureau of Chemistry, of the Department of Agriculture, and Dr. E. E. Pratt, chief of the Bureau of Foreign and Domestic Commerce, of the Department of Commerce, representing the Government; Mr. J. I. Andrews, of the American Sheet and Tin Plate Company, representing the tin-plate industry; Mr. H. W. Phelps, of the American Can Company, representing the can manufacturers; Mr. Henry Burden, president of the National Canners' Association, and Mr. W. F. Burrows, president of Libby, McNeil & Libby, representing the packing interests, and Mr. Theodore F. Whitmarsh, president of the National Wholesale Grocers' Association, representing the wholesale grocers. The report of this committee was embodied in recommendations made to the Secretary of Agriculture and the Secretary of Commerce, for consideration and approval, if deemed proper.

These recommendations have been approved by the Secretary of Agriculture and the Secretary of Commerce, and, by direction of the committee, copies are being sent to all interested parties.

The recommendations follow:

The Secretary of Agriculture and the Secretary of Commerce:

On the call of the Department of Commerce there came together at Washington, May 1, representatives of the tin plate manufacturers and the tin can manufacturers, the National Canners' Association and the National Wholesale Grocers' Association, to consider means for conserving the supply of tin plate and cans so as to insure ample facilities for the packing of the perishable crops of 1917. As a result of the meeting the undersigned were constituted a committee on can conservation to serve during the season.

From information available it would appear that, while the supply of tin plate will be sufficient to enable can makers to operate their plants to approximately full capacity in the near future, and then for the balance of the year, the extraordinary demand since October last for cans for dried beans and peas, hominy, macaroni, spaghetti and other non-perishable foods has prevented the accumulation of the customary supply of storage cans to care for the perishable crops that will presently be forthcoming. Strenuous measures of economy must at once be taken if these products are to be secured.

The committee believes the suggestions of the Secretary of Agriculture and the Secretary of Commerce, as outlined in their circular letter of April 6th, should be followed exactly, and that no cans whatever should be used for the packing of non-perishable food products or non-food products where such use would divert the supply from the conservation of perishable fruits and vegetables, for a period of sixty days, or until such time as there shall be assured a sufficient can supply to amply care for the pack of the season.

Inasmuch as a very large proportion of packers, representing probably 75 per cent of the total pack of non-perishable foods, have already fully adopted the suggestions of the secretaries, and have ceased all operations on these articles, and, recognizing that the business men of the United States are fully alive to the necessity for patriotic action under present conditions, the committee strongly urges each and every packer who may not have already followed the suggestions of the government, to do so at once.

The committee further recommends—

To the Farmers:

That they co-operate generously with the canners of the country in the effort to permit no falling off in acreage planted to cannery crops, and that they recognize fully the vast number of the population of the United States and of the world that have become dependent on the food supply conserved yearly in tin containers.

To the Tin Plate Manufacturers:

That they give preference to the delivery of tin plate for containers for perishable foods, and that they refrain from shipment of plate to those packers making their own cans where such are likely to be used for the packing of non-perishable products, and further, that they discontinue exportation of tin plate suitable for packers' cans except as such may be designated for military uses.

To Can Makers:

That they withhold shipments of cans until they receive satisfactory assurance from customers that consignments will be used only for conserving perishable food products of the season.

To Canners:

Whether buying cans from can makers or making them for their own use, that it shall be their patriotic duty, until an accumulation of a sufficient supply of cans to care for the perishable crops shall be apparent, to abstain completely from packing non-perishable foods.

To Wholesale Grocers:

That they forthwith voluntarily suspend or cancel all contracts for delivery of non-perishable food products in tins, made with canners, and fully relieve the latter from all liability thereunder.

To the Retail Dealers:

That they, on their part, consent to the suspension or cancellation by jobbers of any contracts for delivery of non-perishable foods in tins.

To Every American Manufacturer and Merchant:

That, having complete faith in their patriotic loyalty to their country in its effort to avoid the errors into which others have fallen through lack of intelligent foresight and recognition of unusual circumstances, they accept the suggestions above outlined in the same spirit in which they would appeal to them in case they had become the law of the United States, mindful that, "The supreme test of our Nation and of the nations with which we are co-operating is an abundance of supplies, especially of foodstuffs. The importance of an adequate food supply, especially for the present year, is superlative," and that "The supreme test of the Nation has come. We must all speak, act and serve together."

Signed by the Committee.

Substitutes for Potatoes.

A number of starchy roots, tubers, and forms of vegetables, including Jerusalem artichokes, cassavas, dasheens, yams, yautias, and taros, in addition to the well-known sweet potatoes, have food values and degrees of digestibility approximately equal to those of the Irish or white potato and, like the latter, merit extensive use as a part of mixed diets, according to specialists of the Office of Home Economics of the U. S. Department of Agriculture. Of these vegetables, the sweet potato is best known in this country and is most extensively consumed both in the fresh and canned forms. Cassava is grown extensively in Florida and may be prepared directly as food by cooking or may be made into a flour from which bread and cakes are to be prepared. Tapioca, which is prepared from it, is widely used.

The Jerusalem artichoke, a member of the sunflower family, which grows throughout a large portion of the United States, may be obtained in many markets throughout the winter since it is not injured by frost and can be dug when wanted. It may be prepared in many ways and gives a wholesome variety to the diet. A number of the tropical edible roots are known to Americans chiefly in the island possessions of the United States. The dasheen, however, can be grown easily in the warmer portions of continental United States and, because of its good shipping qualities, already has found its way into a number of markets.

RETAIL PRICES JUNE 1, 1917

Figures on the left give prices per pound and per 100 calories. Figures on right give prices as ordinarily purchased.

St. Matthews represents the small country town of about 1,500 population. Lima represents the medium sized inland city. The reason for the selection of the other cities is obvious.

Price per pound Cents	Per 100 Calories Cents		St. Matthews, S. Car.	Lima, Ohio	New York	Chicago	St. Paul	New Orleans	San Francisco
		CANNED FOODS							
12.8	1.4	String Beans, 1 lb. 3 oz. cans	$0.15	$0.18	$0.14	$0.15	$0.15	$0.15	$0.15
13.0	3.0	Corn, 1 lb. 4 oz. cans	.15	.18	.12	.17½	.17	.17½	.15
11.7	4.7	Peas, 1 lb. 4 oz. cans	.15	.15	.12	.17½	.15	.15	.12½
8.8	8.8	Tomatoes, 2 lb. 1 oz. cans	.20	.20	.17	.20	.18	.20	.12½
11.6	4.6	Peaches, 1 lb. 13 oz. cans	.25	.25	.18	.22	.15	.22½	.20
12.0	1.7	Pineapples, 1 lb. 14 oz. cans	.25	.25	.19	.25	.20	.25	.20
23.7	3.6	Salmon, red Alaska, 1 lb. cans	.20	.28	.25	.25	.23	.20	.25
54.4	5.9	Sardines, domestic, 3¼ oz. cans	.05	.15	.07	.18	.07	.12½	.12½
		DRIED FRUITS							
13.3	1.0	Evaporated Apples, per lb	.10	.15	.13	.15	.15	.12½	.12½
14.6	....	Evaporated Peaches, per lb	......	.18	.12	.15	.12½	.15	.15
14.3	1.2	Prunes, medium size, per lb	.12½	.15	.15	.15	.15	.15	.12½
		CEREAL PRODUCTS							
7.8	.48	Wheat Flour, No. 1 Patent, 49 lb. bag	*2.80*	4.25	......	3.96	3.40	4.20	3.40
7.2	.45	Rye Flour, 24½ lb. bag	......	......	1.75	1.98	1.70	......	1.65
8.75	.54	Graham Flour, 10 lb. bag	......	.90	......	.69	1.00	......	.80
6.1	.34	Rolled Oats, in bulk, per lb	.05	.05	.05	.05½	.07	.07	.08
10.5	.66	Rice, fancy, head, per lb	.07½	.13	.10	.12½	.12½	.10	.08⅓
5.6	.34	Corn Meal, per lb	.04	.05	.05	.05	.08	.05	.07
9.3	.57	Pearl Barley, per lb	......	.10	.08	.10	.08	.12	.08
11.2	.94	Bread, per lb	.13	.10	.08½	.13½	.11	.12	.10⅔
18.7	.98	Crackers, Star Butter, bulk, per lb	......	.22	......	.18	.15	......	.20
24.5	1.3	Uneeda Biscuit, 4⅝ oz. package	.07	.08	.06	.07½	.07½	.06	.07½
13.1	.8	Macaroni, bulk, per lb	.10	.20	.12	.12	.15	.12½	.10
		SUGAR AND SYRUP							
9.2	.5	Granulated, per lb	.09	.10	.08 2/7	.09½	.09	.10	.08½
7.9	.54	Corn Syrup, 10 lb. pail	.75	.75	.80	.60	.75	......	1.10
16.4	1.10	Comb Honey, per lb	.10	.22	......	.15	.15	......	.20
32.7	1.45	Cocoa, per lb	.45	.35	.19	.25	.25	.40	.40
		TABLE AND COOKING FATS							
46.4	1.3	Creamery Butter, per lb	.50	.50	.45	.45	.45	.45	.45
28.6	.69	Pure Leaf Lard, per lb	.25	.30	.25	.30	.28	.27	.35
28.3	.83	Oleomargarine, per lb	......	.32	.27	.30	.25	.30	.26
43.7	1.1	Italian Olive Oil, per quart tin	......	1.00	.42	.90	.90	.85	.85
25.0	.63	Cotton-seed Oil, per quart tin	.35	......	.35	.65	.60	.40	......
32.0	.8	Corn Oil, per quart tin	......	.60	......	.60	.60	......	......
4.7	1.5	Milk, per qt	.10	.10	.12	.10	......	......	.10
32.3	1.55	Cheese, American Cheddar, per lb	.35	.40	.27	.30	.32	.32	.30
24.5	4.1	Eggs, fresh gathered, per doz	.30	.39	.43	.37	.38	.33	.37½
		VEGETABLES							
6.0	2.0	White Potatoes, per lb	......	.06	.07	.06	.06	.06	.05
7.5	1.67	Sweet Potatoes, per lb	......	......	......	......	......	.07½	......
6.6	3.3	Onions, per lb	......	.09	......	.08	.07	.06	.03
		MEATS							
26.4	4.0	Beef Round Steak, per lb	.25	.32	.30	.28	.25	.20	.25
35.5	2.5	Lamb Shoulder Chops, per lb	......	.40	.38	.45	.30	.40	.20
30.0	2.5	Mutton Shoulder Chops, per lb	......	.25	......	......	......	.35	......
31.2	2.5	Pork Chops, per lb	......	.32½	.37½	.30	.27½	.30	.30
34.2	6.8	Veal Cutlets, per lb	......	.32½	.45	.35	.30	.30	.32½
31.6	1.7	Ham, Cured, per lb	.32½	.32	.32½	.26	.28	.32½	.37½
35.9	12.4	Chickens, Broilers, per lb	.35	......	.35	.28½	......	.45	......
19.8	5.5	Salt Cod, per lb	......	.25	......	.20	.18	.20	.16
25.0	2.5	Salt Mackerel, per lb	......	.20	......	.25	.25	.25	.30
21.3	4.7	Halibut, per lb	......	.20	.28	.20	.21	......	.17½
22.8	3.6	Salmon, per lb	......	.20	.35	.25	.22	.17½	.17½
19.3	6.0	Whitefish, per lb	......	.22	......	.25	.20	.17	.12½

The Purification of Water Supplies

By H. E. Barnard,
Food Commissioner of Indiana.

NO civic asset approaches in value a supply of water inexhaustible and of dependable purity. The value of such a supply is now realized far more forcibly than ever before. In this country at least water which looked clear and was free from bad odors and tastes was used without question by several generations, but as population became congested and the wastes of human activities were allowed to enter rivers and lakes, the problem of securing a water supply that would not bring to the user disease instead of food, became increasingly important.

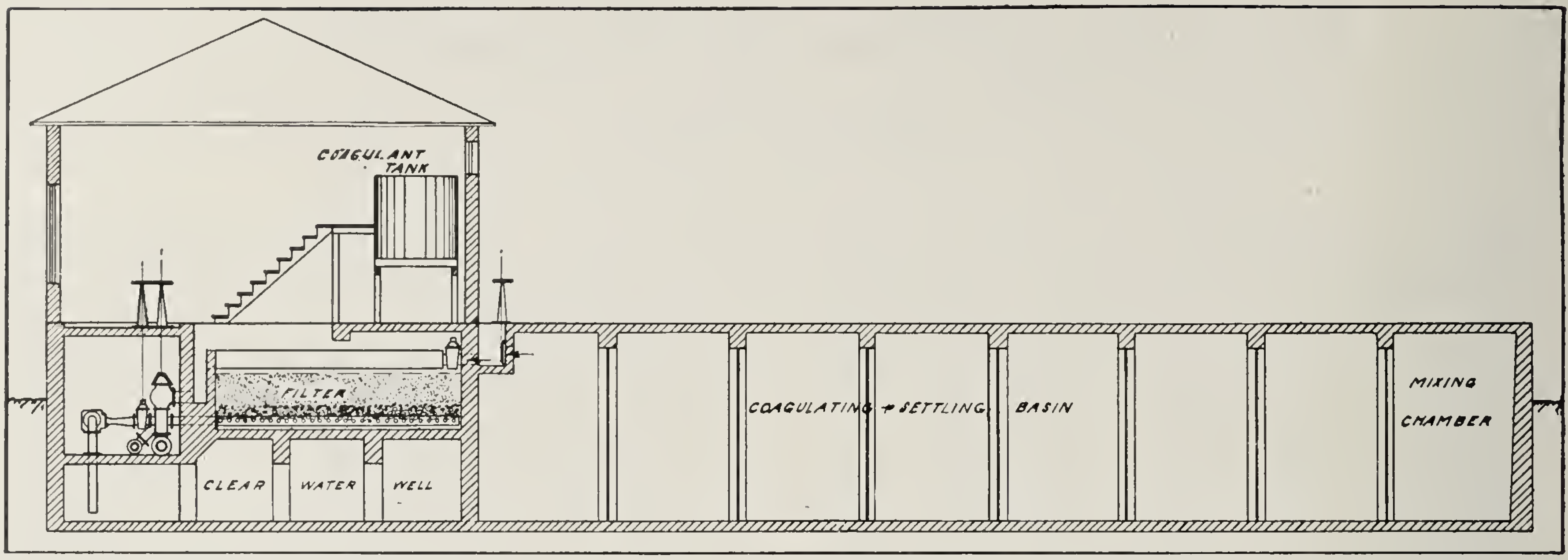
The first attempts to secure pure water consisted in going to sources removed from the possibility of pollution, but there came a time when pure water was no longer available, and then the necessity for water purification was apparent. The water obtained from rivers, lakes, wells and other sources of supply, usually contains a considerable quantity of foreign matter in suspension and solution, not only as inert mineral substance, but also in the form of living organisms and waste products of organic origin. The chemist considers all of these foreign substances as impurities, but in judging the fitness of a water for domestic or industrial use, only those substances which render it detrimental to health, unfit for household and industrial purposes, or unpleasant to the sight, taste and smell, are so considered. Many impurities in water cannot be removed except by expensive chemical processes. Fortunately most of the dissolved substances of mineral origin are not injurious to health. The presence of excessive quantities of lime salts may make a water hard and so expensive to use for laundry purposes, or troublesome when converted into steam in a boiler. Such substances as clay and inorganic material washed from the soil, together with extremely fine particles of silica, alumina and iron oxide, make a water turbid although they have little effect on its potability. It is substances of organic origin that render a water unfit for use. Suspended in such water may be organic soil wash and decomposing organic wastes, while in solution are held colors which make a water unpleasant to the sight and the end products of chemical decomposition such as nitrates, nitrites and ammonia. But the really dangerous foreign matter in water is the bacteria which impart neither color nor odor but which when present in a supply may bring an epidemic of typhoid upon a community like a plague, or scourge a district with cholera.

Photo from International Filter Co.

TYPICAL PRESSURE FILTER INSTALLATION.

Of course many bacteria are harmless; many species are indigenous to water; others are soil bacteria which have been washed into the stream, sewage and industrial waste contribute many millions. Most water bacteria are harmless, or indeed beneficial since they assist in the decomposition of organic matter, but some species, notably those found in sewage, produce disease if the water containing them is used for drinking purposes. These diseases are mainly intestinal in character and are transmitted by the discharges of patients entering streams as part of the sewage.

The most common water-borne diseases are typhoid fever, cholera, dysentery, diarrhea and other intestinal disturbances. The bacteria of these diseases do not grow or multiply in the water which acts simply as a carrier and in which they live for a varying length of time. Disease producing bacteria are indeed



Drawing from International Filter Co.
FILTRATION BY GRAVITY TYPE. VERTICAL CROSS SECTION.

very difficult to isolate in a water supply, but fortunately a group of bacteria known as the Colon Bacilli which flourish only in the intestines of man and higher animals are readily detected and identified. When the Colon Bacillus is found in a water supply in considerable quantity it is a fair presumption that the water is receiving human excreta and that being the case under certain fixed conditions it may carry as well the bacilli which cause typhoid or other intestinal diseases.

It is a fair statement that the run-off of any inhabited water shed is polluted. There are no large rivers in this country which are sufficiently pure to be depended upon as a safe source of drinking water. The Great Lakes, once looked upon as inexhaustible reservoirs of the purest waters in the world, are now polluted and unless purified unfit for drinking and domestic purposes. Aside from a few surface water supplies impounded in natural or artificial reservoirs and protected at great expense from pollution, and a rather large number of comparatively small supplies obtained from deep wells, the waters piped to our large cities are all purified before delivery to the consumer.

Water purification is no longer an experiment in engineering. It is an applied science, the laws of which are clearly understood and recognized by all engineers and sanitarians. No water is so impure that it cannot by suitable means be rendered potable. The methods employed vary greatly and are fixed by several factors such as the cost of pumpage, of filtering material, of chemicals and operation and especially by the character of impurities present and the degree of purification desired.

Slow Sand Filtration.

The practice of purifying water by filtering it through beds of sand originated in England in 1830. It was one of the first processes introduced in this country where it has found extended use in the installation and in the purification of all supplies of large cities, although in recent years the mechanical process has become an important competitor in plants of large size and has far outstripped it in smaller cities.

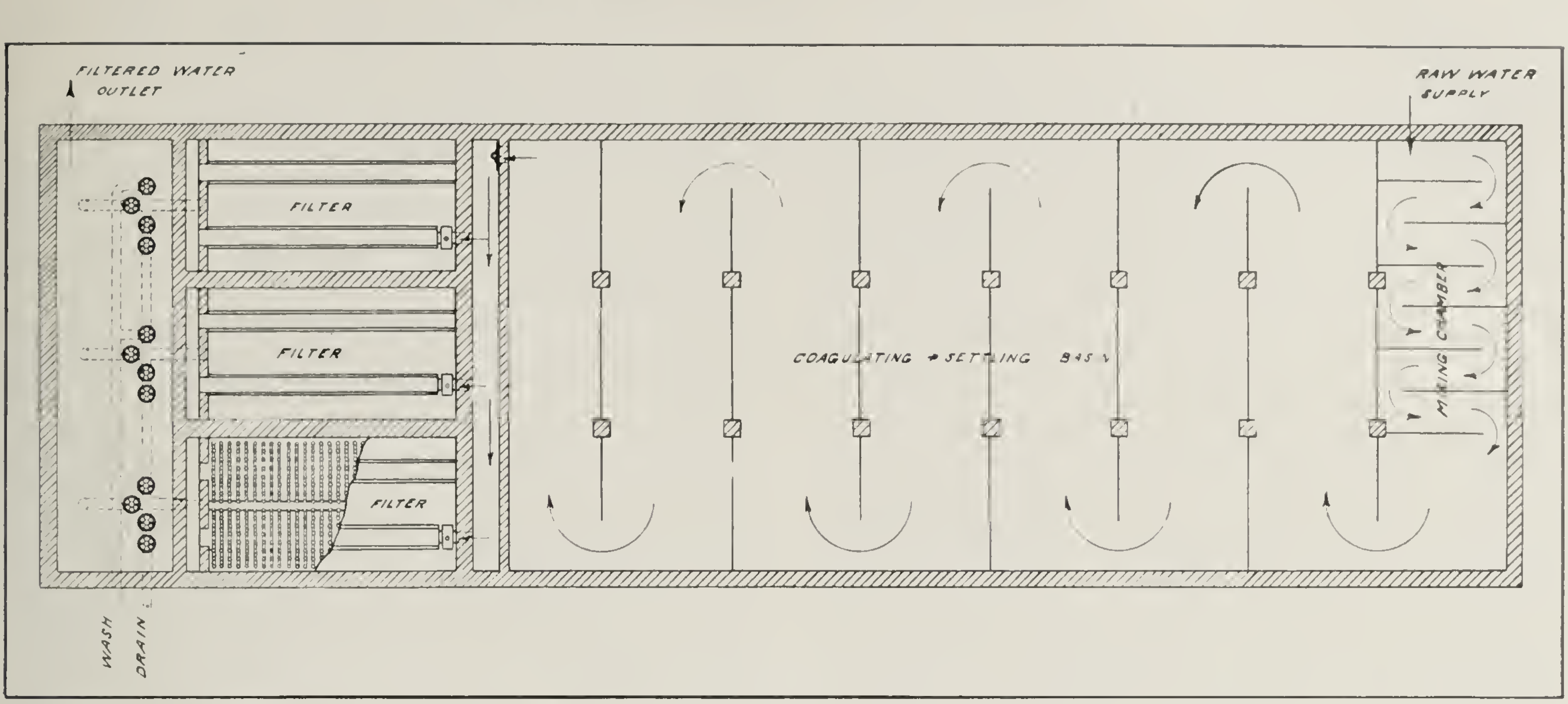
A typical slow sand filtration plant consists of sedimentation basins in which the suspended matter is partly removed and a series of filters arranged in units of from one-fourth to one acre in area. The filtering medium consists of a bed of clean quartz sand of a size of about that of granulated sugar. The depth of the sand bed is generally from three to four feet in a new filter and decreases somewhat as the dirty sand is scraped off with continued use. The sand bed rests on a foot of gravel so graded as to increase in coarseness toward the bottom. The gravel prevents the sand from being washed into the collecting system with the filtered water and allows ample water passages through which the filtrate flows.

From two million to six million gallons may be filtered per acre per day, the usual amount being three million gallons. The filtration rate depends upon the character of the raw water and as well, the condition of the filtration bed.

In theory filtration is a combination of several processes. The first consists in straining out foreign particles too large to pass the interstices between the sand grains. But most of the particles of suspended matter are so small that they readily pass through these spaces. Hence it is obvious that filtration is far more than the removing of impurities by straining.

Bacterial action plays a most important role in the operation of a filter. After a filter has been in operation for a time a slimy gelatinous film forms on the surface both of the bed and of the sand grains within it. This surface coating, commonly known as schmutzdecke, retains much of the suspended and colloidal matter, but the bacterial jelly within the sand is also important, both because of its straining effect and because it traps and holds particles of silt and bacteria as on a sticky fly paper. The efficiency of a slow sand filter increases with age up to a point where the filter sand composing the beds is clogged. When the loss of head of the water passing through the filter is so great as to reduce the amount of water to the maximum quantity required for the system, the surface of the filter bed is raked, thus destroying in part the schmutzdecke. After two or more rakings this process is not longer practicable and the entire surface of the bed is removed by scraping the filters. In the case of a very turbid water filter beds may require scraping every few days, but usually it is not necessary to scrape them more than once every four or six weeks. After a considerable quantity of the sand bed has been removed by repeated scrapings the filter is resanded to its original level.

But few slow sand filtration systems are now being installed. The original cost is considerable and a large area, frequently not readily available is re-



Drawing from International Filter Co.

FILTRATION BY GRAVITY TYPE. HORIZONTAL CROSS SECTION.

quired, and the cost of scraping and keeping in condition is no small factor in the operation of the water system.

Mechanical Filters—Gravity Type.

The chief difference between rapid or mechanical and slow sand filters is in the higher rate used in the former process. One hundred to one hundred and fifty million gallons as against three million gallons per acre per day are about fifty to one. The high rate of filtration makes it necessary to remove coarse suspended matter before the water goes to the filters. This is accomplished by coagulation and sedimentation in large basins. Since the rate of clogging the sand varies directly with the rate of filtration, the filter beds must be cleaned daily. This gives no time for the formation of a schmutzdecke by natural biological processes and so a substitute is applied in the shape of a jelly-like film or "mat" of coagulum. Coagulation is usually effected by adding alum or sometimes sulphate of iron which in an alkaline water forms a flocculent mass which, as it readily settles, entangles and holds on the surface of the bed most of the impurities. The nature of the filtering material through which the water passes in a mechanical filter is similar to that used in slow sand filters, although it is only about half as deep and is slightly coarser in quality. The sand rests on a bed of graded gravel about a foot thick. The gravel in turn is supported by some type of strainer through which the water passes to the pipes below the beds.

In place of removing the accumulated debris from the surface of the bed by hand labor as is the case in the slow sand filter, in the mechanical process the flow of water is reversed and the sand is washed free from dirt by clean water which is forced through it from below, thus lifting to the surface and carrying off through suitable troughs all of the waste material which the bed has accumulated. The process of washing a bed is completed in from twelve to fifteen minutes and uses in the operation but a small fraction of the filtered water which has passed through it.

Mechanical Filters—Pressure Type.

Another form of mechanical filter is known as the pressure type filter. The chief difference between this type of filter and the gravity pressure plant is that the filter itself is, in the pressure type, closed in by means of a water-tight cover thereby bringing upon the surface of the water to be filtered the pressure of the system as a whole. In other words, to the force of gravity is added the head under which the water is being forced by pumps through the filter system. This type of filter calls for one less pumping operation than does the gravity type and is being used for both large and small operations in constantly increasing numbers. The lay of the land is often the determining factor as to whether to install a gravity type filter or a pressure type filter.

A properly operated mechanical filtration plant handles large volumes of water at low cost and with maximum efficiency. The successful use of all water purification plants demands skilled superintendence to insure use of the coagulating medium in the proper amount and the washing of the beds when they need it in a thorough fashion.

Domestic Filters.

Household filters are usually made of some porous material through which the water is forced by the pressure of the water main. Such filters are merely mechanical strainers. If the plates or cylinders through which the water is forced are sufficiently porous a considerable volume of water passes through them, but its quality except under unusual conditions cannot be depended upon. Moreover in actual practice such filters often become breeding grounds for bacteria and deliver a water with a higher bacterial content than the raw water which comes to it.

In general it may be said in discussing all filters that their efficiency depends upon two things—the type of construction of the plant itself and the ability of the man in charge of its operation. And of these two factors the personal one is the greater. A properly operated filter plant will deliver potable water which the consumer may use with confidence, but a filter plant which is badly managed by unskilled men who are employed in an endeavor to keep down expenses or to pay a political debt is not to be depended upon. Because of these unfortunate facts there has recently been developed a process for the chemical treatment of water after preliminary filtration. This process will be discussed in our next paper.

Definitions and Standards for Milk and Cream.

The following suggested definitions and standards for milk and cream were submitted by the Joint Committee on Definitions and Standards on April 23, 1917:

1. MILK is the whole, fresh, clean, lacteal secretion obtained by the complete milking of one or more healthy cows, properly fed and kept, excluding that obtained within fifteen days before and ten days after calving. It contains not less than three and twenty-five hundredths per cent (3.25%) of milk fat, and not less than eight and five-tenths per cent (8.5%) of milk solids not fat.

2. STANDARDIZED MILK, ADJUSTED MILK, is milk of which the original fat content has been changed by the addition or removal of milk fat to maintain a declared percentage of milk fat. It contains not less than three and seventy-five hundredths per cent (3.75%) of milk fat.

3. SKIMMED MILK is milk from which substantially all of the milk fat has been removed. It contains not less than nine and twenty-five hundredths per cent (9.25%) of milk solids.

4. CREAM, SWEET CREAM, is that portion of milk, rich in milk fat, which rises to the surface of milk on standing, or is separated from it by centrifugal force, and is fresh and clean. It contains no less than eighteen per cent (18%) of milk fat and not more than two-tenths per cent (0.2%) of lactic acid.

5. HEAVY CREAM is cream that contains not less than forty per cent (40%) of milk fat.

6. PASTEURIZED MILK OR CREAM is milk or cream that has been subjected to a temperature of not less than 145 degrees Fahrenheit for not less than thirty minutes and promptly cooled to at least 50 degrees Fahrenheit.

7. BUTTERMILK is the product that remains when fat is removed from milk or cream, sweet or sour, in the process of churning. It contains not less than eight and five-tenths per cent (8.5%) of milk solids not fat.

8. HOMOGENIZED MILK OR CREAM is milk or cream that has been mechanically treated in such a manner as to alter its physical properties with particular reference to the condition and appearance of the fat globules.

Definitions and Standards for Cheese.

Submitted by the Joint Committee on Definitions and Standards, April 25, 1917:

1. CHEESE* is the sound product made from whole, part skimmed, or skimmed milk, goat milk, or the milk of other animals, with or without added cream, by coagulating the casein with rennet, lactic acid, or other suitable enzyme or acid, and with or without the further treatment of the separated curd with ripening ferments, special moulds, or seasoning.

A cheese bearing a varietal name indicating a special process and foreign origin, when made in America by the same process is designated as American Camembert, American Emmenthaler, American Swiss, or American Roquefort Cheese, as the case may be, and, except for the place of manufacture, conforms to the definition and standard of the foreign cheese.

American cheeses made from cow's milk to resemble European varieties made from the milk of other animals are designated in such a manner as to indicate that they are made of cow's milk.

2. WHOLE MILK CHEESE is cheese made from whole milk.

3. SKIMMED MILK CHEESE is cheese made from skimmed milk.

(In the case of cheese normally made from whole milk, when milk is used from which any of the fat has been removed the approximate amount of this fat removal is stated in connection with the varietal name of the cheese, e. g., "one-quarter skimmed milk," "one-half skimmed milk," "three-quartre skimmed milk," etc., as the case may be.)

4. CREAM CHEESE is the soft cheese made in America by the action of lactic acid or rennet on cream or on milk with the addition of cream, and without further treatment with ripening ferments or special moulds.

5. WHEY CHEESE is a product made from whey, separated from casein by means of rennet, lactic acid, or other suitable enzymes or acids.

CHEESE MADE FROM WHOLE MILK.

6. AMERICAN CHEESE, AMERICAN CHEDDAR CHEESE, is the cheese made in America from whole milk by the Cheddar process. It contains not more than thirty-nine per cent (39%) of water, and, in the water-free substance, not less than fifty per cent (50%) of milk fat.

7. LIMBURGER CHEESE is the soft cheese made by the Limburger process, from curd obtained by the action of rennet on whole milk and ripened in damp atmosphere to a strong characteristic odor. It contains in the water-free substance not less than fifty per cent (50%) of milk fat.

8. BRICK CHEESE is the semi-hard, ripened cheese made in America by the American brick cheese process, from curd obtained by the action of rennet on whole milk. It has an elastic, more or less open texture and a strong, sweetish taste.

9. STILTON CHEESE is the hard cheese made in England by the Stilton process, from curd obtained by the action of rennet on fresh whole milk with or without added cream. The unheated and unpressed curd is ripened by special blue or green mould.

10. STIRRED CURD CHEESE, SWEET CURD CHEESE, is the hard cheese made in America by the Cheddar process, from whole milk in which cutting and cooking of the curd are done rapidly without regard to development of acid.

11. NEUFCHATEL CHEESE is the soft cheese made in France by the Neufchatel process, from curd obtained by the action of rennet and lactic acid on whole milk. The curd is kneaded and during the ripening process special moulds develop, and later reddish areas appear upon the surface.

CHEESES MADE FROM WHOLE OR PARTIALLY SKIMMED MILK.

12. EDAM CHEESE is the hard cheese made in Holland by the Edam process, from curd obtained by the action of rennet on milk or partly skimmed milk, with or without the addition of harmless color, and ripened by special slimy fermentation (bacillus viscosus). It is commonly coated with harmless color and drying oil.

13. EMMENTHALER CHEESE, SWISS CHEESE, is the hard cheese made in Switzerland by the Emmenthaler process, from heated curd obtained from whole milk or partly skimmed milk by the action of rennet, and ripened by special gas producing bacteria, causing characteristic "eyes" or holes. It is sometimes colored with saffron. It contains in the water-free substance not less than forty-five per cent (45%) of milk fat.

14. CAMEMBERT CHEESE is the soft cheese made in France by the Camembert process, from curd obtained by the action of rennet on whole milk or slightly skimmed milk and subjected to slow process of ripening by the aid of special moulds (Penicillium Camemberti).

MISCELLANEOUS CHEESES.

15. ROQUEFORT CHEESE is the semi-hard cheese made in France by the Roquefort process, from curd obtained by the action of rennet on sheep's or goat's milk. It is inoculated with mouldy bread crumbs, a special ripening mould (Penicillium Roqueforti) and has a friable consistency and a mottled or marbled surface section.

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*The name "cheese" as used without qualification in America refers to American cheese, American cheddar cheese.

The Peanut Crop in India.

The final official memorandum on the groundnut (peanut) crop of India for the 1916-17 season filed with the Department of Commerce shows an increase in area of 38 per cent as compared with 1915-16; but as the outturn is only 8 per cent greater, the yield per acre works out 22 per cent less than last year. The Government estimate, based on reports from provinces which comprise 99 per cent of the entire groundnut area of British India, places the total area at 2,317,000 acres, against 1,673,000 acres in 1915-16, and the total yield at 1,147,000 long tons of nuts in the shell, against 1,058,000 tons, making the average yield per acre this season 1,109 pounds, contrasted with 1,417 pounds last year.

Commercial Canning

By A. W. Bitting, M. D., and K. G. Bitting, M. S.

Among the military measures enacted by the French government near the end of the eighteenth century, was the offering of a bounty of 12,000 francs for an improved method of preserving foods. The object was to secure better quality and to reduce the loss in waste and spoilage of foods used in military and naval stores. This bounty was considered generous at the time and in fact was sufficient to attract the attention of some capable men. Nicholas Appert, an expert confectioner, brewer, distiller and chef was among those who began experimenting; he worked from 1795 to 1804 before he attained his first success which consisted in heating the product and then hermetically sealing the container. He continued his efforts, using many substances, and so perfected the art that in 1810 he published the results. He was awarded the prize, and almost universally honored as the discoverer of the art of canning. Appert did the work so thoroughly, and the method was so simple that others began using it as early as 1815, and it was put into commercial practice in 1820. Although conceived primarily as a war measure, the possibilities and advantages of having food preserved in such a wholesome, palatable manner attracted attention immediately to its use in the household. The use of such foods has increased until the value of the product in this country alone amounts to about $250,000,000 annually. At the present time there are about 3,000 canning factories in the United States with an output of 3,000,000,000 cans.

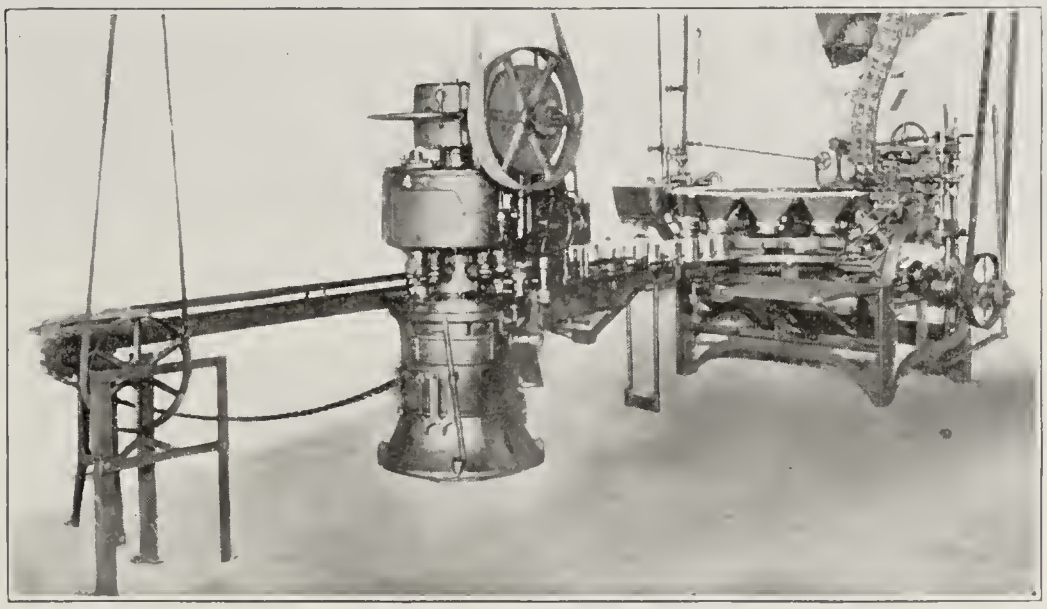


Photo by Sprague Canning Machinery Co.

AUTOMATIC LINE FOR FILLING PEAS. SANITARY CAN SEALING MACHINE IN FOREGROUND.

While the fundamental principle in preserving a food product is the administration of heat in due degree and for sufficient time to cause sterilization and to maintain the condition in a closed container, there are other factors of great importance. Appert used an open water bath for heating his bottles and this method is the one in common use in the packing of all fruits. In this method a temperature of 212 degrees Fahrenheit (100 degrees Centigrade) is the maximum attainable, and in practice can not be reached in the center of the can. With fruits, however, this temperature is not necessary, as the more highly acid they are the more easily they are sterilized. Most of the fruits can be sterilized at 185 degrees Fahrenheit (85 degrees Centigrade) and in experimental work the results have been quite satisfactory as low as 165 degrees Fahrenheit (65 degrees Centigrade) at one heating, although continued for a longer period. As far as known to the writer, all fruits may be sterilized in a very short time at or near the boiling point; as the temperature descends below the boiling point the period must be increased, but it does not follow in a definite ratio. Vegetables are not so easily sterilized as fruits. For the most part they require a temperature above 212 degrees Fahrenheit if applied only once. The most common method now in use is to place the cans in an autoclave or retort and subject them to steam or hot water under pressure. In this manner any desired degree of temperature may be attained.

Good commercial canning begins with the production of the material, in the selection of seed, as for corn and peas, in getting the right variety of fruit, and in supervising the cultivation, harvesting and delivery of the raw material to the factory. It is imperative that the raw material be of first class quality, uniform and in the right stage of development to give the best results. One cannot use mixed varieties of peas, cut at all stages of maturity, and since these and other products must be furnished by scores of farmers and growers, it is necessary for the canner to have a complete understanding and supervision over the work. This is one of the very important features with which the consumer is not familiar, and accounts in a large measure for "quality."

The immediate work in securing products involves rush operations not associated with regular harvesting. Most of the vegetables are green and in a state where they change or spoil rapidly. Asparagus must be cut and packed the same day, and so important is this that the factories have been located near the growing beds. The standing for a day makes a difference in the degree of toughness and flavor. Peas, corn and green beans are all seriously injured by standing. Berries must be collected in very shallow boxes, and fruits, such as apricots and peaches, picked when just ripe, and handled in shallow lug boxes to prevent bruising. The milk collected for the evaporated product must be fresher and cleaner than that which is generally delivered in the city market.

Grading.

The first operation in almost any factory is that of grading. The foreman looks over the loads of peas, corn, tomatoes, or fruit, and sends them to different points to be unloaded, according to their condition. This is only a starting point, and is continued in almost every successive operation throughout the factory. Grading for quality must be done by the eye for the most part, and for size by machinery. It is frequently a question whether this is not carried to excess, but people eat with their eyes fully as much as with the sense of taste and demand peas that are uniform in size and color, though they are not as good as the mixed, and demand small peas at high

Photo from Joseph Campbell Co.

FILLING ROOM OF SOUP CANNING FACTORY.

cost in preference to the large, although they are not so nutritious or economical. The extreme to which the work is carried is well illustrated in the offering of fifteen or more grades of Alaska peas, and an equal number of yellow cling peaches. It is carried to such a point for jobbing purposes that even the packer cannot recognize the difference in his own pack without having two or more grades together.

The machines for sizing are generally built on the principle of a revolving cylinder or vibrating screens having holes of standard dimensions to make the necessary separation. The first set of holes are large and all except the largest size peas will fall through. The next set one size smaller takes out the next grade, and this process is continued to make the number of sizes desired. In the case of fruits, tapering rollers may be used so that as the fruit reaches a certain size it will fall through or the rollers may mechanically open and permit the dropping of certain sizes in the proper bins. An ingeniously devised wire belt is also made to open a mesh of varying size, and an apple sizer is made to operate on the principle that with a uniform force a light body will be thrown farther than a heavy one.

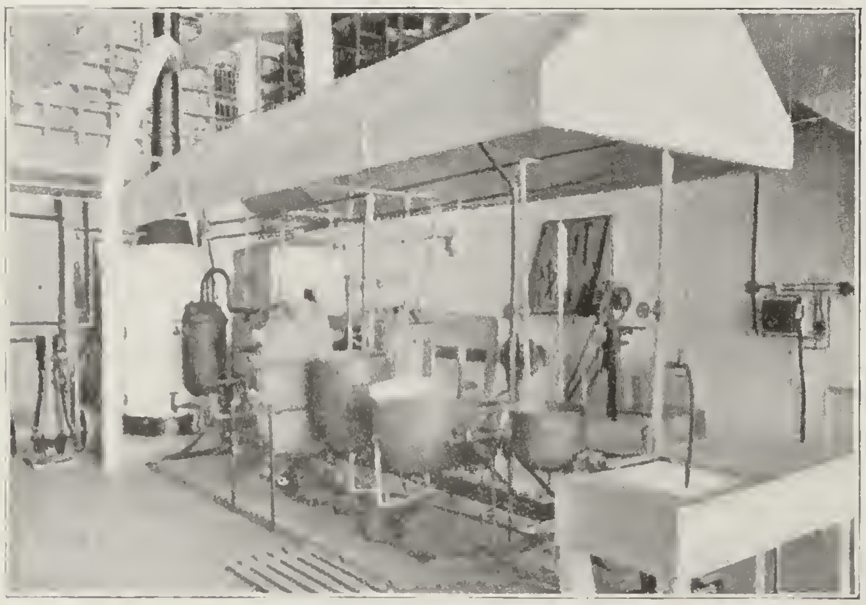


Photo from National Canners Laboratory.

MODEL PLANT FOR EXPERIMENTAL CANNING.

There is only one important machine used for making the separation for quality, and that is for peas. It is based on the principle that tender, succulent peas are light and the old ones are heavy, and upon this difference an approximate separation may be made by immersing them in weak brine. The tender ones float and are skimmed from the top, while those that sink are conveyed from the bottom. The separation of green and soft fruits and those that are off color must be done by hand.

Preliminary Preparation.

The general preparation will naturally vary widely with the different products. Berries are stemmed and the defective ones picked out; plums are stemmed;

Photo from Joseph Campbell Co.

PROCESSING CANNED FOOD IN VERTICAL RETORTS.

cherries are stemmed and may or may not be pitted; apples and pears are peeled and cored; peas are shelled; corn is husked; beans are snipped; and beets, carrots, sweet potatoes, etc., are peeled. Some of these operations require especial and elaborate machinery, while others are dependent on hand work.

Washing.

The most important operation in canning is that of washing, and for this purpose machines have been invented that are most ingenious in the way and care with which they handle particular products. In some, the product is soaked and then sprayed; in others i is soaked and agitated to loosen dirt; in another it is sprayed with a large volume of water; and in still another the sprays are small but have a strong pressure. The most common type of washer is known as the squirrel cage. A cylinder is made of woven wire and a perforated pipe runs the full length within, so that peas, beans or any other product goes through in a single layer, rolls over many times, and is constantly subjected to sprays of water as light or as heavy as desired. Another type of machine passes the product on conveyors under sprays or between sprays. The principle of using sprays is the same as that of washing a floor with a hose with an open end or a nozzle. The former will use a lot of water and accomplish little, while the latter will use little water and accomplish much if the pressure be right. Berries need a slight immersion to loosen dust and adherent dirt, and then should be passed under very fine sprays to cause their removal. Pears, apples, and all cut or sliced fruits need to be kept submerged in plenty of fresh water until packed in the cans. Tomatoes need very small but strong jets of water directed on them. Peas need washing both before and after blanching and probably require more water for their entire preparation than any other product. All the vegetables need to be washed under strong jets of water.

All cans need washing irrespective of their appearance. They collect dust and dirt during manufacture, in shipment and in storage, and need to be rinsed just before using. Machines have been devised that do this work very well. The open top can collect more dust than the hole and cap can, but is much more easily cleaned. The milk can has such a small hole that dirt cannot enter.

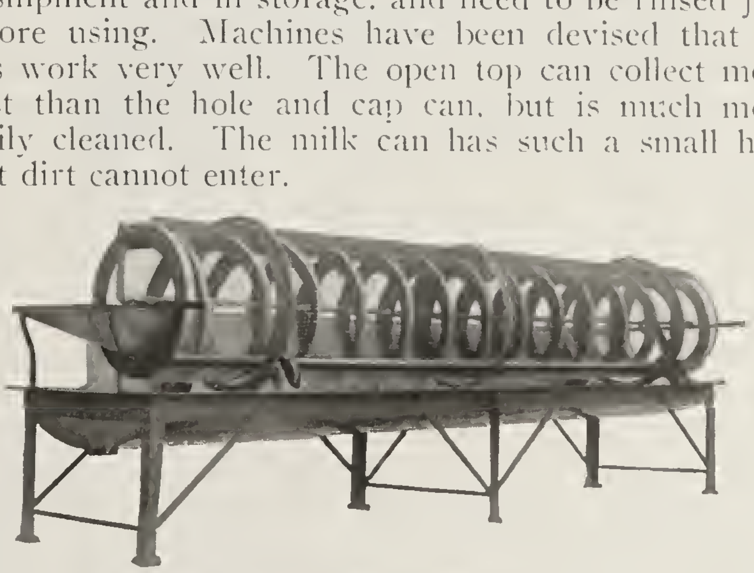
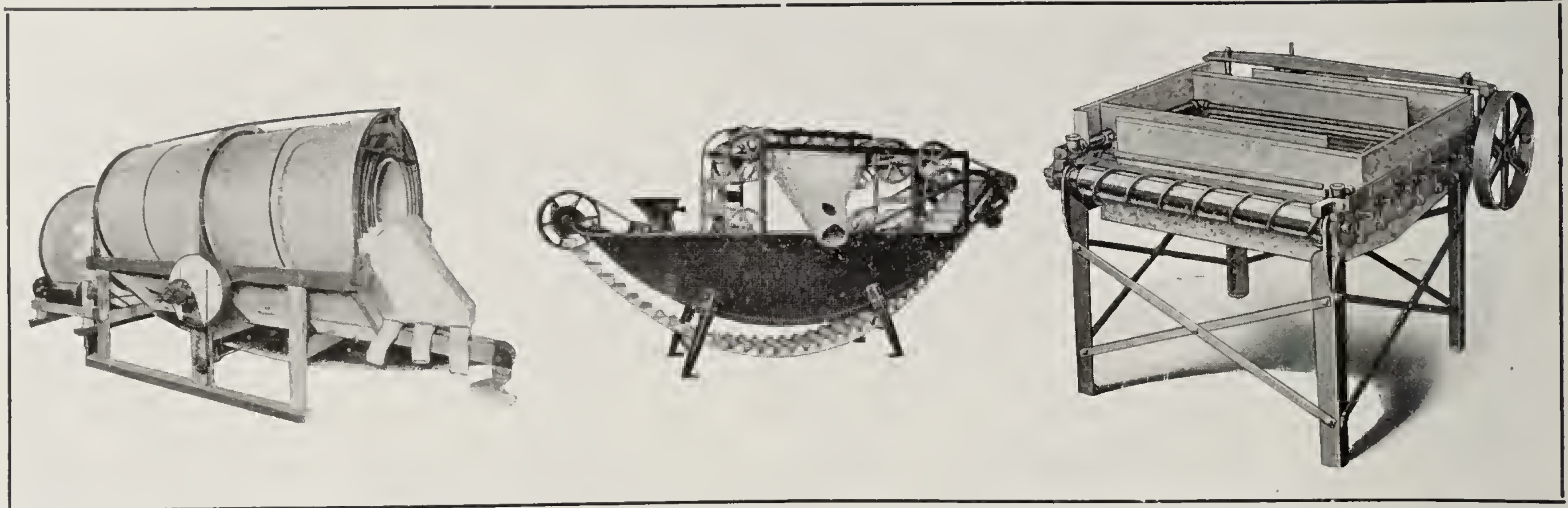


Photo from Sprague Canning Machinery Co.

WASHER FOR TOMATOES AND CORN.



Photos from Sprague Canning Machinery Co.
LEFT, GRADING MACHINE WITH CONCENTRIC SCREENS; CENTER, WASHER FOR PEAS AND BEANS; RIGHT, EXHAUSTER FOR TOMATOES AND FRUIT.

Blanching.

Blanching is a necessary operation with most vegetables, and advantageous with some fruits. The term is derived from the French *blanchir*, used in the culinary sense, meaning "to scald or boil off," and not to whiten as is frequently inferred. Peas, beans, spinach, etc., are dropped into boiling water from one to fifteen minutes to cause their softening, and also to cause the removal of a rather objectionable sticky substance from the surface. Peaches are dipped in hot water to make them sufficiently flexible to pack well in the can, but incidentally the process also serves to obtain a more uniform color. The blanching may be done in steam, but the liquor will not be so clear. This work is accomplished by automatic machinery.

Filling the Cans.

Most vegetables are filled into the cans by automatic machinery. Corn is heated in a tank with the proper amount of water, salt, and sugar, and filled into the cans while hot; peas, tomatoes, string beans, soup, milk, fish and potted meats, each has its special filling machine. The higher grades of fruit require hand filling to get the proper quantity and prevent bruising. The practice is to fill the can as full of the product as possible without injuring it in any way, and then to add water, brine, syrup or sauce to fill the interspaces. In order to prevent short weight or overweight most hand filling is checked by scales.

Exhausting.

After the cans are filled they are heated slowly until the contents are hot, before capping. The object in heating is to cause the expulsion of air. This has little, if anything, to do with the sterilization, but if the air be not driven out, there is not the proper collapse of the can, and it may be difficult to tell when spoilage occurs. A far more important reason is the lessening of the attack of the contents on the container. The exhausting should be slow, taking from six to ten minutes, for products containing more or less liquid, and a longer time for those that are almost solid. The temperature should not be less than 130 degrees Fahrenheit in the center of the can, and it is preferable that it should reach 165 degrees Fahrenheit. Very rapid heating causes the cells to swell and burst, and injure the appearance. A machine has been devised which will exhaust the air mechanically while the can is being sealed, and which has some advantages over the heating method. Ordinary cans have a partial vacuum of from 6 to 8 inches, those well exhausted 10 to 13 inches, and those very well exhausted up to 22 inches. In the factory the exhausting is accomplished by passing the cans on a conveyor through a steam box or a shallow hot water bath. Corn and other products filled into the can while hot are not exhausted. In the home canning the same result is accomplished by setting the glass cans in hot water until the contents are hot before clamping on the lid. The presence of a solder mark on the end or side of a sanitary can usually indicates that the product has been sealed cold, then placed in a retort or bath for a time, then taken out and vented. This gives a very thorough exhaust, and was the method formerly employed on all fish and meats, and to certain extent on vegetables.

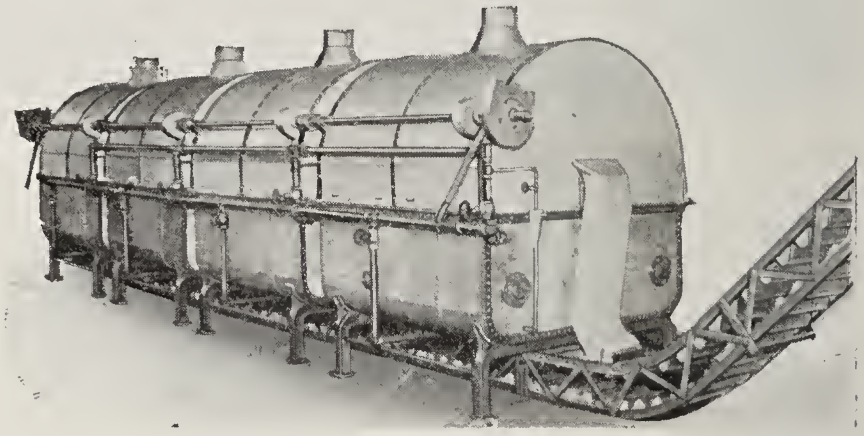


Photo from Sprague Canning Machinery Co.
BLANCHER FOR PEAS AND BEANS.

Closing the Can.

Open top cans are closed by a machine called a double seamer. The edge of the top and the flange on the side are hooked together and turned under with such force that it makes a hermetic closure. This is aided by a very thin layer of cement or a paper gasket. The machines used for this purpose work at speeds varying from thirty to eighty cans per minute. No acid or solder is required. Hole and cap cans are closed by automatic machines which wipe the top, place the caps, apply the flux, solder, and tip the vent at the rate of sixty per minute. The closed cans may be run through a hot bath for inspection for leaks. The presence of the leak is noted by the rising of bubbles. The percentage of leaks is so small that the majority of the factories do not resort to this precaution. Where canning is done on a small scale, the hand-capping steel and copper tipper are used.

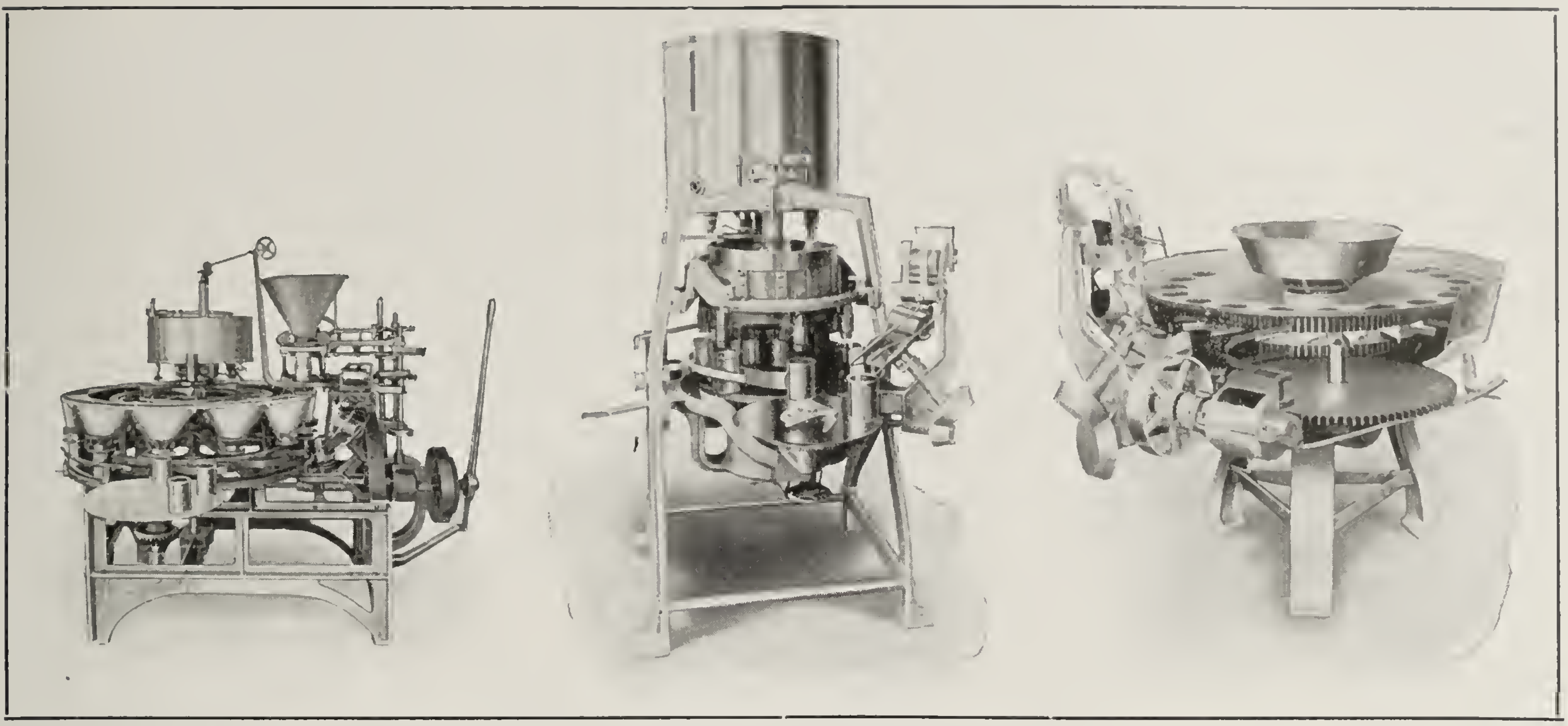


Photo from Sprague Canning Machinery Co.

TYPES OF FILLERS. LEFT, PEAS AND BEANS; CENTER, CORN; RIGHT, TOMATOES AND FRUIT.

Processing.

The term processing is applied to the operation of sterilizing. As already indicated, this is accomplished at a temperature and for a time best suited to the product. No rule can be followed but each product must be treated in the manner found best by experience.

The simplest method of processing is to place the cans in crates or iron baskets and immerse them in a tank containing boiling water. The water is kept hot by turning a jet of steam into it from the bottom. These open baths may be very simple wooden tubs or metal tanks, or very long ones into which they can enter at one end and travel slowly through and come out at the other. The same kind of apparatus can be used for processing at a lower temperature or for pasteurizing, by keeping the water at the proper degree of heat. Cans may also be carried into boxes and steamed without pressure. Processing above the boiling point is done in iron boxes or steel cylinders, known as restorts. These may be vertical or horizontal and of such size that they will hold from a few hundred to three or four thousand cans. In the vertical retorts, steam may be used alone, or steam may be used in water. In the horizontal retorts, steam only is used. The pressure will vary from 5 to 15 pounds, thus giving temperatures from 220 degrees Fahrenheit (105 degrees Centigrade) to 255 degrees Fahrenheit (124 degrees Centigrade). The practical agitating cookers have thus far been of the open type, rolling the cans in single file through water or steam.

The proper control of time and temperature is so very important that this is no longer intrusted to the attention and memory of the cook. Temperature controllers and timing devices as well as recording thermometers are installed as part of the equipment, in order to guard against mistakes. These have been perfected to such a degree that in processing in a retort the chef can turn on the steam, turn the key on the controllers, and know that the temperature will be maintained, that the steam will be cut off at the right time and that the air and water will be admitted to properly cool the cans.

Cooling.

The process should be carried to the point of sterilization and then should cease, as retention of heat for a longer time only tends to cause injury. For this reason it is important that cooling should take place at once. When the products are packed in the storeroom and ricked or piled without cooling no one can say what process was given; they may be hot for hours, and some cans even for days. The result is invariably an uneven and inferior product. Under extreme conditions tomatoes may become as brown as a walnut and acquire a bitter taste, peas become mushy and taste scorched, and the majority of the cans show an unnatural darkening. One of the anomalies of this condition is that in peas and corn particularly, souring may take place, due to bacteria which can withstand a high temperature.

Cooling is accomplished by immersing the cans in tanks of water, by turning cold water into the kettles, or by spraying the cans in the air. Where water is scarce, the practice is to stack the cans in open sheds for a day or two.

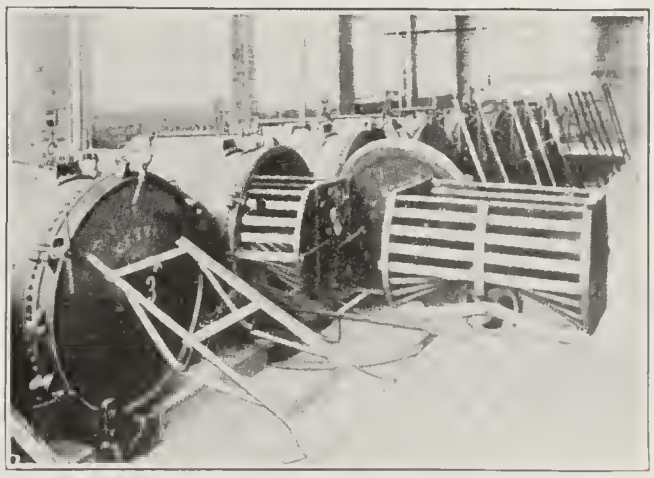


Photo from Sprague Canning Machinery Co.

HORIZONTAL PROCESSING KETTLES.

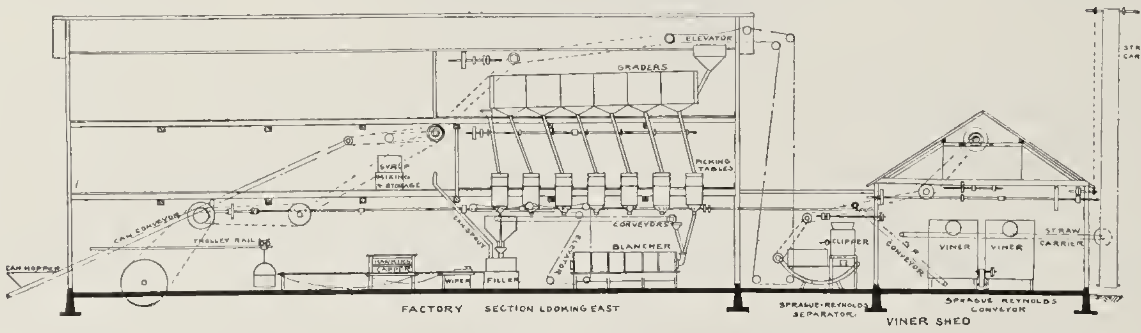
Labeling and Boxing.

When the cans are cool the ends should be well drawn in, and the cans bright and clean and free from rust. When canning is done near the sea, or where there is much dampness, it is a common practice to lacquer the can. This is done as soon as possible to prevent rust, and not later, to cover up rust. The cans are then labeled and boxed. The nailed box is the one generally used, though the wire bound is coming into a general use on account of the saving on lumber and freight. The fiber board container is also gaining recognition, especially for small sized cans. Whatever style of box is used, it should be neat, clean and of sufficient strength to stand shipment to the customer.

Keeping Quality.

There seems to be a general assumption that all canned food deteriorates with age. This is probably true within limits, but the rate at which the change takes place is so slow as to be scarcely appreciable within three or four years. Much depends on the character of the product, the method of preparation and the conditions on storage. A pack of corn put up in 1916, if the crop is of exceptional quality, may easily be better in 1919 than the pack of 1917 and 1918, if the crops of these two years should be of ordinary quality. The differences in the quality of the crop may far more than offset any changes due to time. There seems to be very good evidence accumulating that fruits packed at a low temperature may actually improve in flavor while in the can, that after three or four years they are richer than at first. This is somewhat along the lines of the aging of wines. There are products, especially some highly acid fruits, which attack the container, causing loss of color and flavor in the product, dissolution of the iron and tin in appreciable quantities, and development of sufficient gas to cause springers and perforations in the cans. Improvement in the method of packing these products has been going on very rapidly in the past few years, so that many criticisms that were warranted on the ground of deterioration are rapidly passing. The unjust assumption was often made that what applied to a few products was equally applicable to all.

A very important point in the keeping quality of canned foods is that they be stored in a cool, dry place. Freezing causes injury to the product, dampness causes rust and perforation of cans, while a very warm temperature increases any tendency toward attack by the product on the container.



Drawing from Sprague Canning Machinery Co.

MODERN PEA CANNING PLANT.

Hulled peas are carried to third floor and are from that point on handled by gravity conveyors and intercommunicating machinery.

The High Quality of Canned Foods

By Lawrence V. Burton,

of Libby McNeill and Libby

TO attempt to enlarge upon the advantage of canned foods and the economic value of the canning industry at this late day and age would seem superfluous, but, when within this last month a domestic science teacher from a city of 40,000 people was escorted through one of the factories of the largest food product houses in the world, she expressed great surprise over the snow-white cleanliness of the plant and the sanitary condition of the whole outfit, marveling at the economical operation and recovery of by-products, it was apparent that there is still more need for canned food propaganda. Here was a lady who has always been kindly disposed toward canned foods and who wields considerable influence in her community, and who was greatly as well as pleasantly surprised to find that a canning factory was as wholesome and clean as her own kitchen.

What is the inference to be drawn from this lady's exclamations of evident pleasure? (She is considered a food expert as far as preparation of foods is concerned.) There seems to be but one answer. She has been advocating the use of canned foods only from the basis of their being a great convenience in the household economy, but has not known any other reason for using them.

Hence, this article is to be a summary of a few of the points which ought to be driven home and clinched in the understanding of every person who buys food. They are points which should be known to every salesman of canned foods for they are the most important features of the food preserving industry, aside from the actual preservation of food itself. The Federal and State governments consider the industry important enough to spend millions of dollars annually for inspection of foods and factory operation.

In the early days of the canning industry, canners were not always successful in putting up the high quality of products, which can now be found for sale at any grocery store, and many housewives fail to keep up with the progress of modern canning. One has but to witness the operations of a first rate canning institution to realize that only the best kinds of foods are put into cans and that canned foods are frequently far superior to foods in bulk.

It is also possible to see how canned foods are sometimes superior to the fresh articles brought to the door, because the cannery has been located at the field in which the crop has been grown, whereas fresh foods delivered to the home sometimes are picked green, shipped a thousand or more miles, and artificially ripened in transit. They are then presented to the purchaser with a flavor and color not like that obtained by natural ripening of the fruit or vegetables.

Take canned meats as an example; it will hardly be necessary to elaborate on the convenience to the housewife of having a few cans of deviled ham, veal loaf, sausage or corned beef in her pantry. How many times company arrives unexpectedly at a time when it is impossible to purchase fresh supplies. The canned meat is far superior to the home-pickled meat, because it has been sterilized and is completely enclosed in tin and for this reason no dust or dirt can possibly reach it. Canned sausage is always fresh. It never spoils. If one does not use the canned meat within a few days after purchasing, there is no harm done in keeping it for several years. Very recently the officials of Libby, McNeill & Libby opened a can of corned beef that was packed forty years ago, and found the product in first class condition. Should one purchase an oversupply of canned foods, they can be kept indefinitely without los sor deterioration.

At the Congress Hotel last week a gentleman and his wife were taking breakfast at a table adjoining the writer's. Pineapple was on the menu.

"Will you have fresh or canned pineapple, sir?" inquired the waiter.

"Have you any of Blank's pineapple?"

"Yes, sir."

"Bring us some of that," replied the discriminating gentleman.

On inquiry why that gentleman preferred canned pineapple to fresh pineapple, he replied: "It is perfectly simple. Business takes me all over the world and I have visited the Hawaiian Islands probably not less than ten times, where I have acquired a decided fancy for Hawaiian pineapple. But the fresh pineapple which we receive in this country comes from the West Indies and has no resemblance in taste or flavor to the fresh Hawaiian pineapple which has ripened in the field. The pineapple canned in the Hawaiian Islands carries with it that delicious mellowness which can only be obtained by ripening the fruit on the plant. It is for this reason that I always prefer the canned fruit to the fresh fruit."

What this gentleman said about pineapple can be truthfully stated about almost every canned food, for the canneries are located at the field and the food is not shipped miles overland to undergo an artificial ripening process, with the result of producing an unnatural flavor. California fruits, when properly canned, will resemble more closely the fresh, naturally ripened fruit than the product we frequently find in our fruit stores, which has been shipped overland in refrigerator cars.

As far as sanitary preservation of any food is concerned, probably there is no food which is more carefully put up, which receives less handling with the bare hands than Hawaiian pineapple. From the time it is picked, it is scarcely touched by the hand until the can is sealed, for canned pineapple is one of the most carefully preserved of the fruits.

At one time about two years ago, while the writer was engaged in municipal public health service and was endeavoring to trace an epidemic of diphtheria, it was astonishing to find how many people use canned milk. In the milk evaporating industry we have the means of preserving the one most perishable of all foodstuffs known to man. By the use of concentration and the tin can, the manufacturer has enabled the poor to buy milk in small quantities in a form which does not easily spoil, and it affords anyone the opportunity of keeping a supply of milk or cream in the home for the time when the milk man fails to leave the bottles at the door. The only way in which residents of tropical countries are able to receive milk in any quantities is by the purchase of canned condensed milk. The value of the condensed milk manufacture to the ice cream manufacturer need hardly be mentioned here.

Everybody knows the joke about the mystery of the boarding house, i. e., Hash. How many of us lack the courage to go into a restaurant with which we are unacquainted and order hash! Yet this is an article of diet of which many people are very fond. To meet this demand one of the largest canning companies in this country puts up corned beef hash in small cans, which is not only prepared in the most sanitary fashion, but thoroughly sterilized, and may be eaten with absolutely no fear. What a convenience such an article as a can of hash is to the busy man or woman who happens to be cooking in a kitchenette, can be readily appreciated.

Along this line is canned plum pudding, which has recently made its appearance on the American market. A plum pudding, packed and sterilized, and sealed hermetically, is much more appealing to the senses than the plum pudding baked some time in the fall and stuck away on the top shelf for the next six months, not always protected from dirt and smells, and more or less apt to dry.

Canned soup is so well known nowadays that it is hardly necessary to discuss this article at length. One sees advertisements that a can of Blank's soup will serve six people at a cost of about 2 cents per plate. The housewife could hardly prepare soup at double this price, because soup stocks, etc., used by the canner are by-products of meat, tomatoes and other vegetables.

In the matter of feeding armies, the use of the complete army ration in a single can shows what various governments think about canned foods in preference to bulk foods. The ease of cooking, the freedom from dirt, contamination and disease, the ease of shipping and the convenience of service, all are weighty arguments in favor of canned foods.

Everyone knows how delicious asparagus cut from his own garden tastes and how frequently woody and tough is fresh asparagus bought in large cities, when it has been shipped in from the fields sometimes a hundred miles away. Canned asparagus offers the city family a vegetable in tin which will compare more than favorably with the fresh asparagus cut from the field 24 to 36 hours previously.

Were it not for the food product manufacturer very few people of the world would know the wonderful flavor of the salmon. Here is a fish that is caught in tremendous numbers during three or four weeks of the summer and after the run is over, there are no more salmon for another year. Except for the sterilization in tin, a few people along the seacoasts would know salmon for a short time during the summer only and the rest of the world would be denied one of the most valuable foods which we know.

In the making of apple butter the apples are peeled by machinery and the peelings saved. The average housewife throws away apple peelings, but the modern purveyor of canned goods does not. From these peelings is extracted pectin, a substance which makes jellies "jell." From this substance some of the finest jellies in the world are made. The manufacturer knows that some fruits do not contain sufficient pectin to make merchantable jelly, and frequently add pectin from the apple peeling to give proper consistency to the jelly. The canner is in possession of many methods of making economies which the housewife could not possibly put into effect. The saving of the apple peelings is one of these.

In the canning of peas, the canner is able to make silage out of the pea vines and feed it to cattle during the winter, thus making a saving, which brings the canned peas to the household at a figure less than before and sometimes cheaper than the housewife can buy the green vegetables at her door in great cities during the season.

What has already been said about some of the fruits can also be said of cherries. The factory preservation of cherries is an industry which has various methods of economy which cannot be practiced in any other place on a small scale. Since the European War, we have turned to every source imaginable for oils and fats. At the present time quite a valuable oil is extracted from the cherry pits. This oil byproduct will permit the cherry preserver to keep the prices of preserved cherries down to a figure which it would be impossible to reach if he were forced to depend entirely on the one finished product—cherries—for his profit.

Let us consider canned tomatoes for a few moments. Here we have an article of food which the factory can put up in a manner that the housewife could never hope to accomplish unless she uses tin cans. The preservation of juicy, ripe tomatoes, retaining their original color and most of their original flavor to such an extent that they can be used in salads where the most critical guest would fail to find any fault, is possible only by the use of the agitator cooker and the intermittent sterilization. The small tomatoes, and the ones which have been trimmed, and those which are unsuitable for canning are frequently pulped, and from this catsup, chili sauce, tomato soups, tomato paste and other tomato products are made. From the seeds tomato seed oil can be extracted at a very profitable figure, which is another economy the housewife could not put into effect with the small amount of tomatoes she herself has.

Kraut has become a luxury in the past year. Bulk kraut has almost disappeared from the market, leaving only the canned article. There has been more or less doubt in the minds of some people as to whether kraut in the can was as good as the article in barrels. Anyone who has ever gone to the grocery store or butcher shop to buy their kraut and seen the open barrel with dust and dirt at liberty to fall into it, will at once be convinced that the sealed can is preferable to the open barrel. Another favorable point regarding canned kraut is that only the best kraut is put into cans, contrary to the belief of many laymen. The reason for this is that during normal seasons when the price of kraut is low enough so that some manufacturers have been able to put it out at 5 cents per can, the highest quality of kraut can possibly compete with the bulk kraut in the open market. Anyone who buys canned kraut may be assured that he is buying the best article which the kraut manufacturer is capable of putting out.

Have you ever run into a neighbor's house some night and smelled the odor of kraut pervading the place? It is safe to assume that the people who ate this, now rare, food, did not use canned kraut or otherwise there would have been no odor in the house. One of the largest improvements in the methods of cooking has come with the canning of kraut. One merely puts the can into boiling water until it is hot or cooked, then removes from the hot water and opens the can without any of the odor disseminating throughout the household. Almost everybody likes kraut, but few people have the courage to serve it because of the odor. The canned kraut eliminates this difficulty.

It was pointed out very recently in this journal that certain people possessed physiological idiosyncracies toward cabbage, but are perfectly able to digest the soured product. By physiological idiosyncracy is meant that peculiarity whereby the person in question cannot tolerate the presence of the given food in the stomach.

About ten years ago, nobody ever heard of a canned pickle or olive. In those days pickles were almost always packed in barrels or in glass. One can remember a few years ago how impossible it was to buy dill pickles that were good to eat in the spring or summer of the year. The dill was a fall and winter pickle. Now it is possible to buy dill pickles in cans at any time of the year. A few manufacturers have solved the problem of making dills that will keep the year round and anybody who wants a dill pickle out of season can buy a can from the grocer. How much more cleanly and more sanitary is a can of dills than an open barrel in the corner of a grocery store where the casual loafer may stick a dirty hand into the barrel and remove a tempting bit.

The same applies to canned or bottle olives, versus bulk olives. Another reason which favors the use of the bottled or canned product is that if the grocer fails to sell within a certain length of time, dependent upon the temperature of his store, the entire contents of the barrel of olives may spoil, which is an impossibility in the case of the bottled or canned product. In regard to the question of cheapness between the bottled and canned olives, there is no doubt but that the canned olive is the cheaper. As far as keeping qualities are concerned, the canned olives excel the bottled olives in that the light cannot penetrate the can and cause them to fade as is the case of olives that are kept on shelves in glass.

In conclusion it may be said that wherever a product is sold in cans or in bulk there is scarcely a single argument to support the use of the bulk food. Except for the slightly increased price for fruits from far countries and other perishable vegetables there are no arguments against the use of canned foods. Bearing in mind these few points which have been enumerated, with proper educational propaganda the public mind should soon reach the point where no one would express mild surprise that a canning factory is a clean and wholesome place, nor that the foods that are put up are of the highest quality. Neighborly discussion of food should never be given a chance to indulge in condemning canned foods. If anything is going to save the world from hunger during the next two years it will probably be the canning industry.

Final Forecast of India's Sugar Yield.

The Indian department of statistics has issued its final general memorandum on the sugar-cane crop of 1916-17, basing its calculations upon reports received from provinces that contain 99 per cent of the area under cane in British India. As given in the *Indian* (Government) *Trade Journal*, the total area is estimated at 2,414,000 acres, as against 2,391,000 acres, the revised figure of last year, showing an increase of 1 per cent. The total yield of raw sugar (gur) is estimated at 2,626,000 long tons, as against 2,634,000 tons, the revised figure of last year, or a decrease of 0.3 per cent.

Bahia Cacao Crop.

A cablegram from the American consul general at Rio de Janeiro to the Department of Commerce states that the National Agricultural Society estimates the Bahia cacao crop at nearly one million bags.

Home Canning by the Cold Pack Method

MORE than 500 club leaders and home demonstrators, working under the direction of the U. S. Department of Agriculture, are helping to spread the story of how simple and easy it is to do one-period, cold-pack canning at home.

There is no reason why there should not be a canning club in every district of every state of the Union, affording the farm girl an opportunity to earn money, to develop her business ability, and to meet in the social gatherings which grow out of canning clubs.

It has not been found advisable to organize a county in the club work unless the local authorities co-operate by appropriating a part of the money necessary to pay the salary of a county agent.

The state colleges of agriculture co-operating with the U. S. Department of Agriculture are now paying part of the salary of a local or district leader in some communities where the organization is satisfactory.

The first girls' tomato and canning club was organized at Aiken, S. C., in 1910, by Miss Marie Cromer, a teacher in the rural schools. It was intended to give girls in country districts an opportunity similar to that which the corn club offers to boys. Miss Cromer, who is now Mrs. Seigler, was assisted in planning the details of the work by County Superintendent Cecil H. Seigler.

Dr. Seaman A. Knapp, the great agricultural educator, was at that time special agent farmers' co-operative demonstration work, with the U. S. Department of Agriculture. He saw the value of this work both in saving food products now wasted and as a training school for girls, and promptly sent the club a canning outfit, cans, and labels. Secretary of Agriculture James Wilson added a check for $100 and with this financial assistance forty-six girls began home canning.

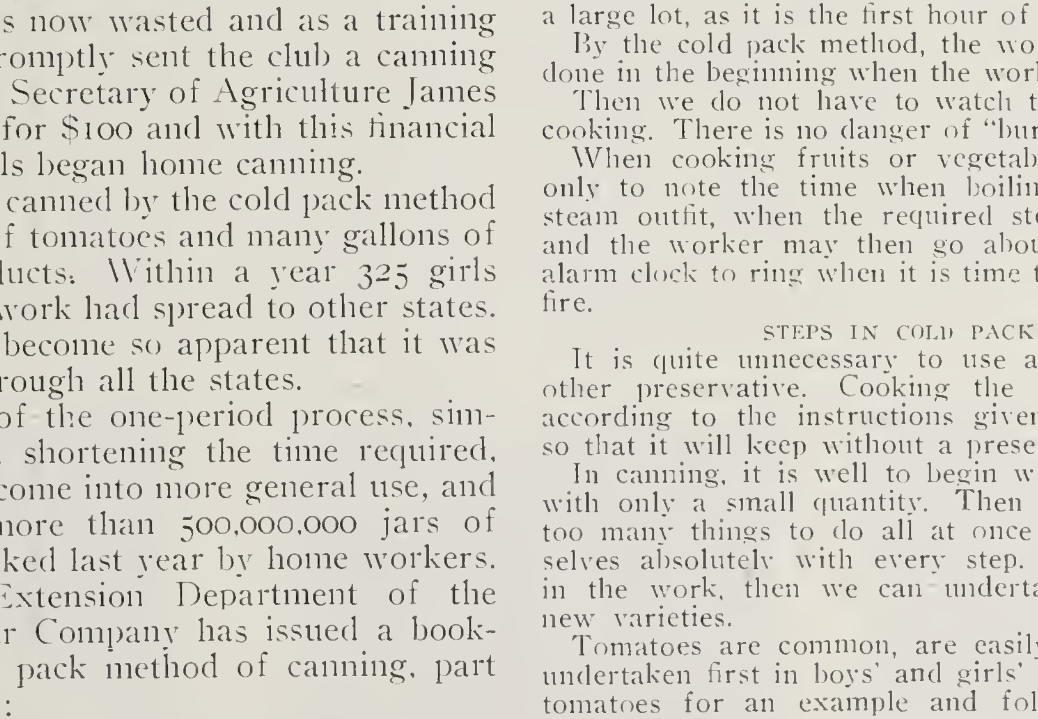
The first season they canned by the cold pack method more than 6,000 cans of tomatoes and many gallons of catsup and other products. Within a year 325 girls were enrolled and the work had spread to other states. In 1912, its value had become so apparent that it was decided to extend it through all the states.

Since the adoption of the one-period process, simplifying the work and shortening the time required, cold pack canning has come into more general use, and it is estimated that more than 500,000,000 jars of canned goods were packed last year by home workers.

The Agricultural Extension Department of the International Harvester Company has issued a booklet describing the cold pack method of canning, part of which is as follows:

Cold pack canning simply means to *scald or blanch and cold dip all vegetables,* pack uncooked, and cook in the closed jar.

Scalding is a familiar term; in canning it is understood always to mean immersing in boiling water, or, steaming. *Blanching* is more commonly known as parboiling. It means that the product is left in the boiling water, or the steamer, for a longer period than is indicated by scalding. The time varies for different products. *Cold dip* means plunging at once into cold water and out again.


O. H. BENSON AND GEORGE E. FARRELL TRAINING TEACHERS OF HOME CANNING.

Blanching eliminates objectionable acids and acrid flavors, makes it unnecessary to exhaust, or use the intermittent process in canning, and is one of the important steps in the "double shock" treatment before cooking. It also shrinks the product.

All vegetables must be blanched and cold dipped. Many of the fruits do not need blanching, but those which are scalded or blanched *must be cold dipped at once.* Such products as are blanched or scalded are heated a trifle; but many of the fruits are packed fresh without blanching and in every case the real cooking is done in the jar.

If we are canning in glass we do not seal the jar but close it lightly. Heating the contents causes steam to form and if no outlet is provided, the pressure of the expanding steam must be sufficient to break the glass.

If we are canning in tin, we seal the can tight. The tin will give enough to allow for the expansion, and as the contents cool, the can will return to its original shape.

WHY COOK IN THE CLOSED JAR?

The product is better in color, in flavor, and in texture. It is not crushed, nor cooked until it is mushy; instead of a conglomerate mass, each berry or slice is distinct. By the old open-kettle or hot-pack method, it is impossible to know that any given jar or product is perfectly sterilized. Even when the products, the jars, the rubbers, and the covers have been sterilized there is still danger of bacteria getting in *while the cooked product is being dipped from the kettle into the jar.*

By this method it is only a trifle more work to can a half bushel than it is to can a quart. Once the product is prepared and put into the jar, it is as easy to cook a dozen jars, if the cooker is large enough, as it is to cook one, and it requires no more time.

It eliminates entirely the hot, trying work of dipping from the kettle to the jar.

When canning with the open kettle, it is just as necessary to sterilize the jars carefully, to test rubbers, to fit tops, and to seal perfectly, at the last minute, with the very last jar, at the end of a long, hot, tiresome day when one is finishing a large lot, as it is the first hour of the morning.

By the cold pack method, the work which needs care is all done in the beginning when the worker is fresh.

Then we do not have to watch the pack all the time it is cooking. There is no danger of "burning the kettle."

When cooking fruits or vegetables in the jar one needs only to note the time when boiling begins (or, if using a steam outfit, when the required steam pressure is reached) and the worker may then go about other work, setting an alarm clock to ring when it is time to take the product off the fire.

STEPS IN COLD PACK CANNING.

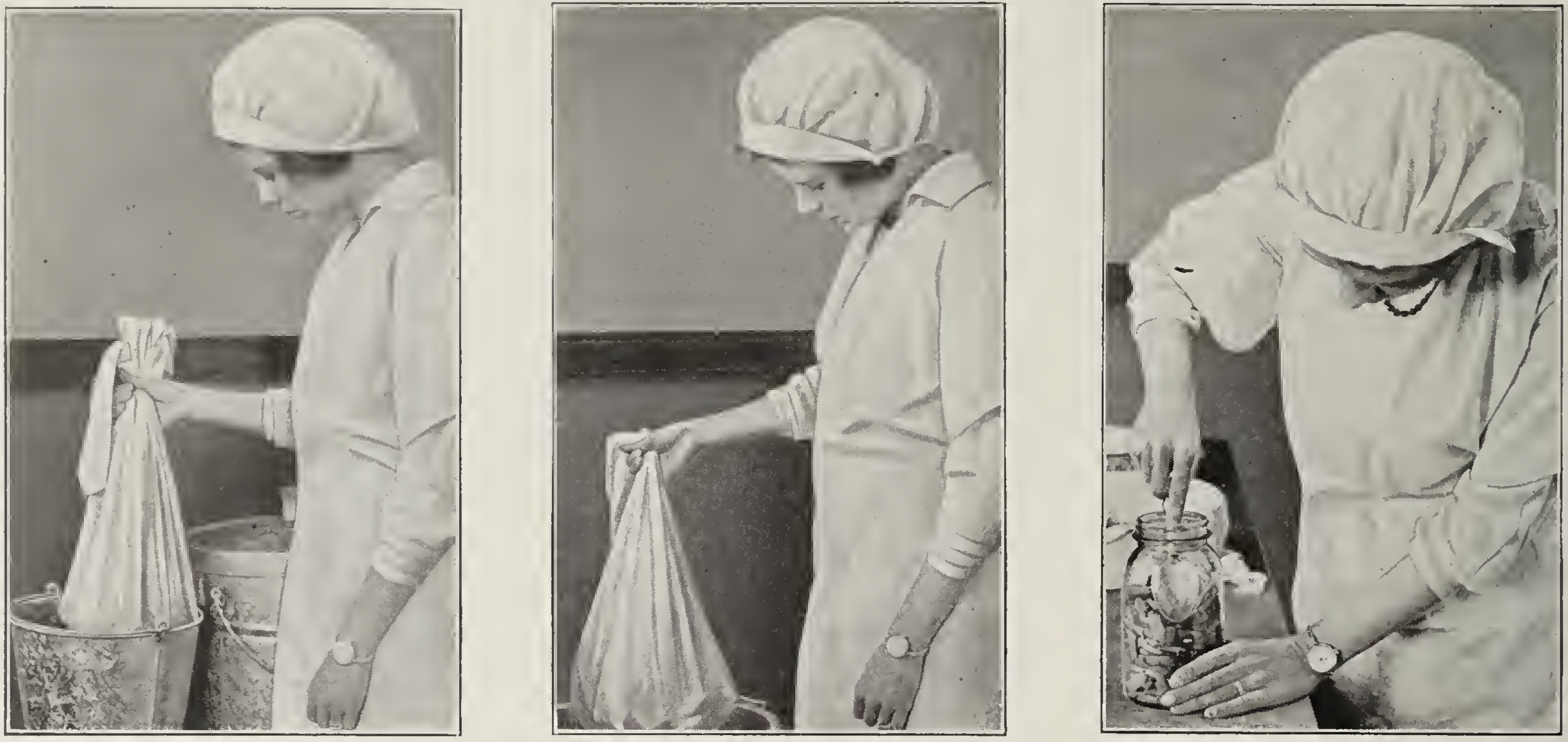
It is quite unnecessary to use any canning compound or other preservative. Cooking the product in a closed jar according to the instructions given, will sterilize any food so that it will keep without a preservative.

In canning, it is well to begin with one product only, and with only a small quantity. Then we are not hampered by too many things to do all at once and can familiarize ourselves absolutely with every step. When we feel at home in the work, then we can undertake larger quantities and new varieties.

Tomatoes are common, are easily canned and are usually undertaken first in boys' and girls' club work. We shall take tomatoes for an example and follow through the various steps.

Select fresh, ripe, firm tomatoes.

Grade for ripeness, size and quality; this is to insure a high-grade product. We could, of course, can different sizes and shades together, but uniform products are more pleasing to the eye and will sterilize more evenly. If the products are of the same ripeness and quality, the entire pack will receive the proper degree of cooking. Of course, we wash the products clean, and where necessary trim them — pare apples, string beans, silk corn,



1. Blanch in Hot Water. 2. Plunge into Cold Water. 3. Pack Close.

STEPS IN CANNING TOMATOES.

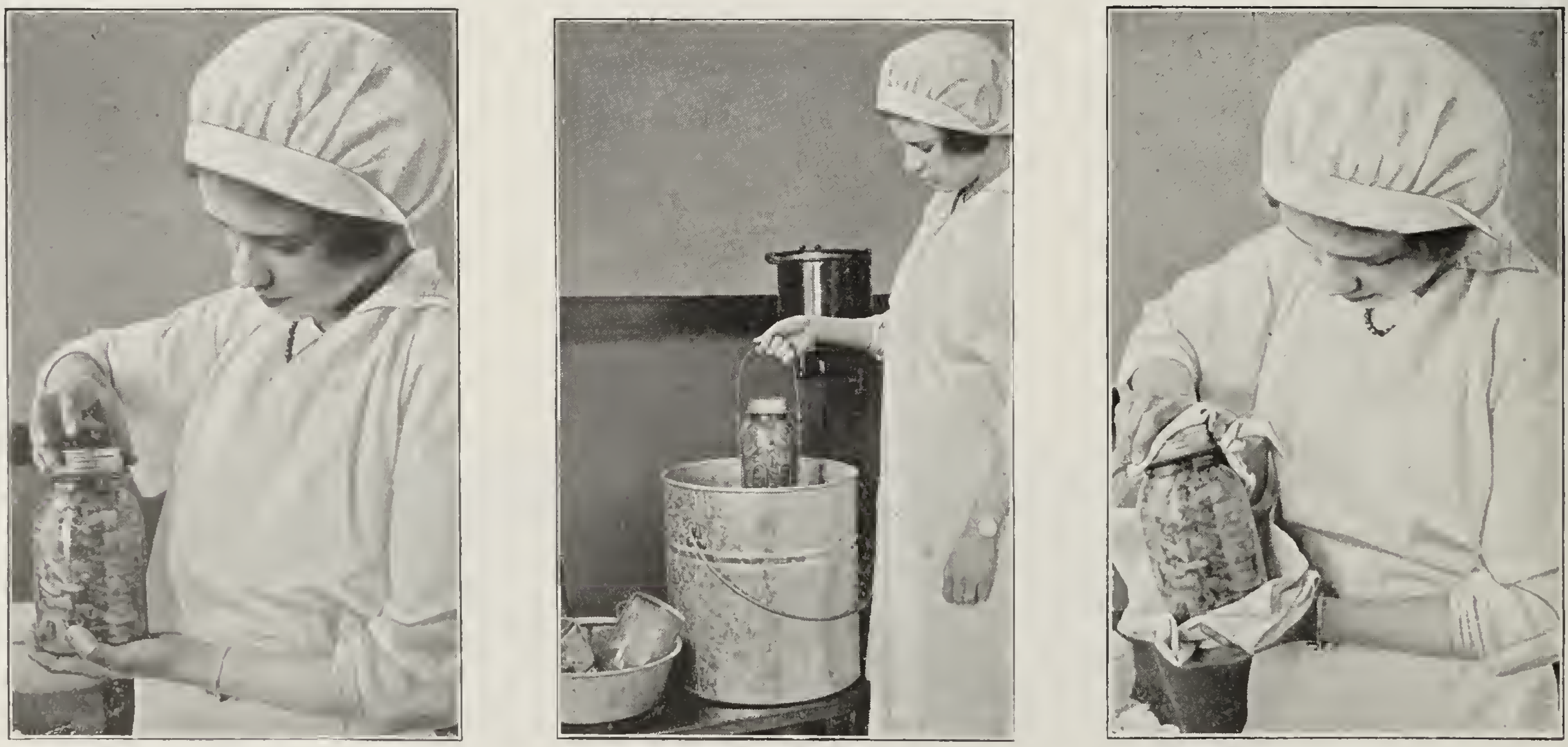
hull berries—in short, prepare them as may be necessary. (In the case of tomatoes we peel and remove the stem end, or core *after* scalding.)

Scald means to immerse in boiling water. Blanching is a longer process. Both loosen the skin. Blanching may also reduce bulk, and drive out objectionable acids, making it unnecessary to exhaust.

Tomatoes need to be scalded only enough to loosen the skin. Have ready a kettle of boiling water. Put the tomatoes in a wire basket, or, lay them on a piece of cheese-cloth, or a towel, twist the ends together to form a sack, and let this down into the kettle. It is a good plan to slip a rubber band around the neck of this sack to hold the ends in place. The ends should be long enough to stand up out of the water and so avoid danger of burning the fingers when removing the product. Have the water boiling hard and leave it over the fire so they will scald quickly. If the water is not boiling it is difficult to loosen the skins without leaving the tomatoes in so long that the pulp becomes soft. If the tomatoes are ripe and the water is boiling, one-half minute to one minute will be sufficient; unripe tomatoes may require longer. A little experience will enable us to tell just when they are scalded enough. Do not leave the tomatoes in the hot water until the skins break, as this gives them a fuzzy appearance.

Lift the tomatoes out of the hot water and plunge them immediately into cold water, or, hold them under the cold water faucet. The cold dip makes them easier to handle, separates the skin from the pulp, firms the texture, and coagulates the coloring matter so it stays near the surface, giving them a rich, red color. Then the shock due to the sudden change from hot to cold and back to hot again seems to help kill the spores. *Do not let the product stand in the cold dip.* The water becomes lukewarm, softens the product and allows bacteria to develop.

Take the tomato in the left hand and with a sharp knife cut out the core. Be careful not to cut into the fleshy portion or seed cells, or the seeds and pulp will be scattered through the liquid, injuring the appearance of the product. Cut out the core before removing the skin, as the skin will protect the pulp and there is less danger of breaking the tomato.



4. Do Not Seal Tight. 5. Cook 1½ Hours. 6. Seal Tight at Once.

STEPS IN CANNING TOMATOES.

The jars, rubbers, and tops, should be ready. Glass jars should be hot, so there will be no danger of breakage in setting them into the hot water, and so they will not cool the water in the cooker below the boiling point. Pack the tomatoes whole, pressing and shaking them well down together, but not using force enough to crush them.

The instructions on the chart are general—hot water for vegetables, hot water or syrup for fruits. *Tomatoes are an exception; as a large part of the tomato is water, no liquid is needed.*

Under the pure food law canned tomatoes to which water or extra juice has been added are considered adulterated. This is intended to protect the public against unscrupulous canners who might slack fill the can with tomatoes and add surplus water or juice. If the tomatoes are to be sold, therefore, nothing should be added except one teaspoon of salt, or, salt and a half spoon of sugar per quart, for seasoning. If the tomatoes are to be used at home they may simply be packed close together, or, those which break in handling may be crushed and poured over the whole tomatoes to fill the spaces. Where tomatoes are to be used as stewed tomatoes, or for soups, they may be cut in pieces, as more can be packed in the same space than if packed whole, but do not fail to can some whole for salads and exhibits.

Fit the rubber. Use good rubbers and see that they lie flat and fit close up to the jar. Put the covers in place.

If using screw top jars, screw the cover down until it catches, then turn a quarter of an inch back; or screw down with the thumb and little finger, not using force, but stopping when the cover catches. If using vacuum seal jars, put the cover on and the spring in place. The spring will give enough to allow the steam to escape. In using glass top jars with the patent wire snap, put the cover in place, the wire over the top, and *leave the clamp up.* The cover on a glass jar must not be tight while the product is cooking, because the air will expand when heated, and if the cover is not loose enough to allow the steam to escape, the pressure may blow the rubber out, or break the jar.

After the products are packed, it is an advantage to cook as quickly as possible. Time lost in bringing the contents to the point of sterilization softens the product and results in inferior goods. For most products, we pack in hot jars, fill with hot water or syrup, have the water in the cooker boiling, and have enough water so it will not stop boiling when the jars are set in. If we use ordinary good sense in handling the jars, we will have no breakage. But tomatoes are only slightly warmed in blanching, and as we add no hot water, the jar is not hot enough to make it safe to set it directly into boiling water. Jars of tomatoes should be set in warm water until ready to place in the canner.

If products are undercooked they will not keep; if they are overcooked they lose flavor and texture. Tomatoes sterilized under boiling water require twenty-two minutes. Berries, apples, and small fruits, will process in five to twenty minutes; greens require twenty-five minutes to two hours; and sweet corn, forty-five minutes to three hours, according to the outfit.

Do not begin to count time until the water is boiling.

We must be able to secure a hot fire quickly, and should keep a fairly even heat. Do not try to economize on water. We must have plenty of clean water to wash jars and products, to make syrups and brines, for use in blanching, and, if we are using a hot-water outfit, for use in processing.

If the seal is not perfect, correct the fault, and return the jar to the cooker for five minutes if hot ten minutes if jar is cold. Do not invert vacuum seal jars. These should be allowed to cool and then be tested by removing the spring or clamp, and lifting the jars by the cover only. Lift the jar only a half inch, holding it over the table so that in case the lid does not hold, the jar and contents will not be damaged. Or, better still, tap around the edge of the cover with a rule. An imperfect seal will cause a hollow sound.

Wrap to keep out the light and store in a cool, dry place. Light injures some canned goods; bacteria breed in heat; dampness favors mould and may cause rust. Canned goods are best kept at a temperature below 70° F. Canned goods exposed to very unfavorable conditions may lose the delicate flavor and color, and in some cases may even spoil.

Take the steps in rapid succession: The cold dip should follow the blanch immediately—the product should be packed and hot water or syrup added at once—it should be processed as soon as possible after packing; else the beneficial effects of shock on the bacteria will be neutralized. All along the line, quick work is an advantage, is safer, and produces better results. If we are to can in quantities we must work quickly and surely, else our profits will vanish.

REPORT OF FOOD IN COLD STORAGE ON MAY 1.

Creamery Butter

Reports from 281 cold storages show that their rooms contain 2,586,593 pounds of creamery butter, while on April 1, 300 storages reported 6,396,854 pounds. The 211 storages that reported holdings on May 1 of this year and last show a present stock of 2,433,144 pounds as compared with 1,081,913 pounds last year, an increase of 1,351,231 pounds or 124.9 per cent. The reports show that during April the April 1 holdings decreased 57.8 per cent, while our last report showed that during March the March 1 holdings decreased 60.4 per cent. Last year the decrease during April was 68.6 per cent, and in March 78.7 per cent.

Eggs

Reports from 350 cold storages show that their rooms contain 1,845,117 cases of eggs, while on April 1, 350 storages reported 174,500 cases. The 288 storages that reported holdings on May 1 of this year and last show a present stock of 1,739,692 cases as compared with 2,327,174 cases last year, a decrease of 587,482 cases, or 25.2 per cent. The reports show that during April, the April 1 holdings increased 997.9 per cent, while our last report showed that during March, the March 1 holdings increased 3,015.9 per cent. Last year the increase during April was 768.8 per cent and during March 430.5 per cent.

Frozen eggs have been added to the list of commodities on which storage reports will be issued regularly hereafter. Reports from 125 cold storages show that their rooms contain a total of 2,659,380 pounds of frozen eggs May 1, 1917. The 92 houses that reported for both May 1, 1917, and May 1, 1916, show a present stock of 2,162,763 pounds as compared with 3,133,262 pounds last year, a decrease of 970,499 pounds, or 31.0 per cent.

Frozen Beef

The total stocks of frozen beef reported by 265 firms on May 1, 1917, amounted to 98,826,285 pounds, while the total stocks reported by 271 firms on April 1, 1917, amounted to 141,359,558 pounds. The reports of 174 firms show stocks of 88,177,799 pounds on May 1, 1917, as compared with 90,175,385 pounds on May 1, 1916, a decrease of 2.2 per cent. The reports of 230 firms show the stocks decreased 23.3 per cent in April, 1917, while the reports of 156 firms show stocks decreased 10.4 per cent in April, 1916.

Frozen Pork

The total stocks of frozen pork reported by 249 firms on May 1, 1917, amounted to 63,533,753 pounds, while the total stocks reported by 247 firms on April 1, 1917, amounted to 62,836.420 pounds. The reports of 183 firms show stocks of 53,998,583 pounds on May 1, 1917, as compared with 77,811,788 pounds on May 1 1916, a decrease of 30.6 per cent. The reports of 218 firms show that the stocks increased 10.3 per cent in April, 1917, while the reports of 162 firms show stocks decreased 0.7 per cent in April, 1916.

Lard

The total stocks of lard reported by 375 firms on May 1, 1917, amounted to 109,355,496 pounds, while the total stocks reported by 400 firms on April 1, 1917, amounted to 61,875,226 pounds. The reports of 286 firms show stocks of 51,565,234 pounds on May 1, 1917, as compared with 108,731,351 pounds on May 1, 1916, a decrease of 52.6 per cent. The reports of 355 firms show that the stocks increased 80.8 per cent in April, 1917, while the reports of 264 firms show stocks increased 12.4 per cent in April, 1916.

Frozen Lamb and Mutton

The total stocks of frozen lamb and mutton reported by 147 firms on May 1. 1917, amounted to 4,337,455 pounds, while the total stocks reported by 149 firms on April 1. 1917, amounted to 4.950.794 pounds. The reports of 104 firms show stocks of 3.331,610 pounds on May 1, 1917, as compared with 3,857.796 pounds on May 1, 1916, a decrease of 13.6 per cent. The reports of 134 firms show that the stocks decreased 9.1 per cent in April, 1917. while the reports of 101 firms show stocks decreased 23.7 per cent in April, 1916.

The Manufacture and Bottling of Soda Water

By Martin Sprague
Assistant Editor

NON-ALCOHOLIC beverages are a sub-variety of foods which should really be classified under amusements. Aside from wholesomeness, which is equally desirable in tooth-paste, teething rings and everything else that enters the human mouth, the qualities which are essential in foods are not particularly required in these drinks. Food should be, first of all, nourishing and economical. If a man is hungry enough, the taste of his food is a matter of slight consequence. It is only after he is assured of a sufficient quantity of protein, carbohydrate and fat that he begins to worry about the flavor and the quality of the cooking.

The value of beverages, on the other hand, is a question of the aesthetics of eating. A fine flavor, a good color, a pleasing aroma, a correct temperature—these are the things that are required of beverages. If the eye, the nose and the palate are satisfied, the amount of the food value may be ignored. Sometimes indeed the *absence* of food value is a positive advantage, in that cooling drinks can be taken between meals without overloading the stomach. As to the cost, that is a matter to be arbitrated with the purchaser's pocketbook, just as if he were buying gardenias.

Nearly all beverages have some value as food, due to the presence of milk, sugar, starch, eggs, or fruit juices, and in some cases this may be great enough to make them a not uneconomical light lunch, as in the case of chocolate malted milk with egg. But in general, the amount of nourishment present is so small that it may be disregarded.

Outside of tea and coffee, carbonated beverages, of which soda water is the typical example, are the most popular soft drinks. These all consist of a mixture of flavored syrup with charged water. Soda water, phosphates, ginger ale, root beer, the cola drinks, and the numerous fancifully named proprietary drinks are all essentially the same, except for the flavor.

Bottled soda water consists of one ounce of syrup and seven ounces of charged water. At soda fountains a slightly different sort of syrup is used, and the proportion of water is less. The modern ice cream soda, in which the soda water acts as a sort of a sauce for the ice cream, whipped cream, marshmallow and nuts, belongs under the heading of frozen confections rather than under beverages.

The fruit syrups used at soda fountains are simply the juice which results from stewing fruits with a large amount of sugar. Every housewife who cans fruit makes a certain amount of true fruit syrup, which, if it was properly cared for and properly packed, could be used at the soda fountain. The process may be illustrated by the commercial manufacture of strawberry syrup.

About the middle of May strawberries are harvested on a large scale in Alabama and Tennessee. The agents of the syrup manufacturers are in the fields, and as soon as the berries are picked, they are partially cooked with a little sugar, and packed in barrels, juice and all. These barrels are rushed to the main plant, and are stewed in large kettles with as much sugar as can be used without causing the juice to be semi-solid on cooling. The juice, separated from the berries, is bottled as it is, or it is first mixed with an equal volume of plain sugar syrup. In the first case it is known as concentrated syrup, and must be mixed with more simple syrup at the soda fountain. In the latter case it is ready for use. In the cheaper class of confectionery stores, especially those operated by foreigners, the dilution of the fruit syrup with simple syrup may be carried to great lengths, in an effort to make it go farther, and the flavor is almost lost. This is practically the only adulteration that is practiced, even in the least reputable places.

The syrup, after being bottled and sealed, is sterilized in hot water, in the same way as canned fruits are processed. The amount of heat must be carefully regulated, because high temperatures destroy the fruit flavors. The proper temperature differs with each kind of fruit, and seldom exceeds 180° F.

Since soda water is intended to please the eye as well as the sense of taste, the syrups are artificially colored to imitate the color of the ripe fruit from which they are derived. Caramel is the principal coloring material used, and after that the eight analine colors that are certified by the government to be harmless. Annato and other vegetable colors are also sometimes employed. As the heat which can be employed in processing fruits and fruit juices is not great enough to kill all organisms, and since the syrup, after it is opened can not be consumed immediately, it is usual to add a little benzoate of soda as a preservative wherever it is permitted.

Cherry, peach, pineapple, raspberry, apple and other fruit flavors are made in the same way as strawberry. Orange and lemon are made by cooking sugar syrup with the rinds, which contain the essential oil. Vanilla beans are cooked with syrup to make vanilla flavor.

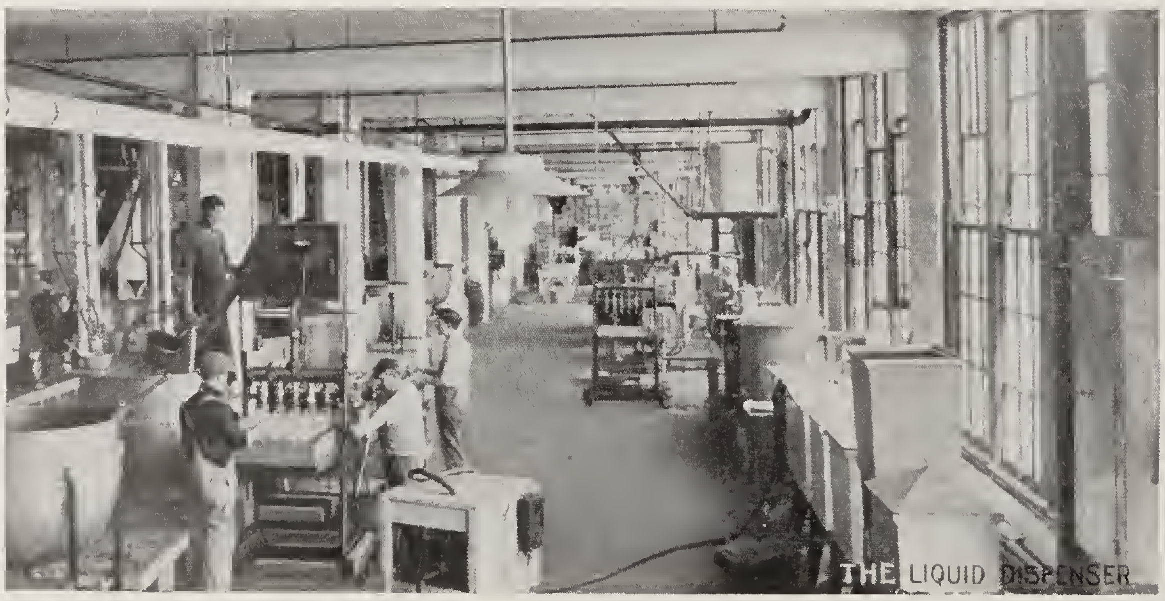


Photo from The Liquid Carbonic Co.
BOTTLING FRUIT JUICES IN TYPICAL EXTRACT PLANT.

Photo by Liquid Carbonic Co.

FIELD KITCHEN WHERE STRAWBERRIES ARE COOKED BEFORE SHIPMENT.

The syrup which is used by the soda water bottler is not made directly from the fruit, but is a clear syrup flavored with extracts by himself. The simple syrup, which is about 60 per cent granulated sugar, is obtained by allowing water to percolate through a layer of sugar in a specially designed apparatus. The flavoring extracts which he uses are identical with those sold to the housewife.

Flavoring extracts are made from a wide diversity of natural products and differ greatly in flavoring power. Most of them are made from the volatile oil of plants. These volatile oils contain the concentrated aroma of the plants yielding them, and are obtained by a process of distillation and purification. However, many plants do not yield them in amounts that are economically practical. Some of the plants that do yield oils are almond kernels, cinnamon bark, cloves, lemon peel, orange peel, sassafras bark, spearmint herb, wintergreen herb and rose petals. Certain other plants have their flavoring principle in such form that it can be isolated. Ginger root yields an aromatic resin. Vanilla and tonka beans contain an odorous crystalline principle. But in the fruits, generally speaking, the flavor is so delicate, and so easily destroyed by heat that it cannot be isolated, and flavoring extracts called raspberry, strawberry, peach, pineapple and banana may be a concentrated syrup with very slight flavoring power, but are generally a synthetic compound having a very slight suggestion of the true flavor of the fruit.

For this reason the soda bottler generally fails when he attempts to make fruit flavors (except lemon and orange), and has his success with such products as ginger ale, root beer, and other drinks in which the flavor that he uses is the true flavor of the plant.

Carbonated water is of equal importance with the syrup in the making of soda water. This is plain water, sometimes distilled, but usually only filtered, mixed under pressure with carbonic acid gas (CO_2).

At the present time, carbonic gas is almost always sold to the bottlers in steel drums in liquid form. It is produced commercially in two ways. It can be made by treating a carbonate (either calcium or sodium) with an acid, or it can be collected from the fermenting vats in breweries. In either case it is carefully washed and treated in such a way that when it reaches the bottler the drum contains nothing but pure gas liquefied by pressure.

In the old days, before the liquid gas was put on the market, each bottler had to make his own supply, and the most convenient way was to treat calcium carbonate, in the form of marble dust, with sulfuric acid. This resulted in the birth of a peculiar superstition to the effect that bottled soda water was made of marble dust. This libel was a source of extreme irritation to the bottling trade for many years, and even today courteous people do not discuss marble dust in a bottling plant.

There have been numerous attempts to show that carbonic gas, when introduced into the stomach, has some specific effect on the system. Nothing could be more certain than that it is harmless, but if it is beneficial nobody has been able to show in what way. The probabilities are that it is absolutely inert both physically and chemically. A confused recollection of the fact that people are occasionally smothered in deep cellars and wells in which carbonic gas, being heavier than air, has settled, sometimes calls forth the statement that it is poisonous. This, of course, is entirely untrue, and the presence of carbon dioxide in the human body is as normal as it is in a smokestack.

Photo by Liquid Carbonic Co.
EQUIPMENT FOR STERILIZING FRUIT JUICE IN GLASS.

The water and gas are churned together in carbonating machines which are comparatively small iron chambers, containing revolving paddles which resemble the blades of an electric fan. The gas is readily soluble in water, but the amount taken up is increased by pressure, which is maintained at 80 to 100 pounds. The water and gas are mixed as they run in and when the tank is full the machine stops and the gas and water flow are automatically shut off.

The bottling of carbonated beverages, especially on a large scale, is one of the most interesting of mechanical operations. The most unstable liquid imaginable is filled into fragile containers practically without the aid of human hands.

The bottling operation begins with the cleaning of the bottles. They are placed in pockets and travel through a *soaker*, in which they are alternately filled with and emptied of caustic soda solutions of different strengths, the strongest coming first, and the weakest last. In the so-called pocket type of soaker, the bottles are carried up and down through three tanks of the solution, the necessary agitation being given by the motion of the bottles. In the pressure type, the bottles pass over a large number of spouts which squirt them full of soda solution of different strengths.

After leaving the soaker, the bottles go to the *washer*, which is really a rinsing apparatus. From this point on all the machines are rotary, and the bottles are carried from one to another on traveling belts, so that they give the impression of hurrying of their own volition, at uniform speed, towards the packers who are waiting to put them in cases.

There are numerous types of washers, but in all of them the bottles are brushed inside and out, filled several times with clear filtered water, and tilted over to drain. They are then ready to be filled.

An ounce of the syrup is let into each bottle, and then the water is admitted. As the water has a heavy gas pressure, it is necessary to have an equal pressure in the bottles in order to run the liquid in evenly, which is accomplished by an ingenius counter-pressure arrangement. In the older type of machines the crowning apparatus was part of the same machine as the filler, it being thought that it was necessary to get the cap on before the pressure was released. More recently it has been discovered that if the contents of the bottle is cold, it will retain the gas long enough to travel a short distance to a regular crowning machine. This makes it unnecessary to lift the bottles off the belt on which they travel, and does away with the danger of exploding bottles.

The labeling is done, in the most modern plants, on rotary machines, which stick the labels on the bottles as they circle around. Most plants, however, use automatic hand labelers, in which the body and neck labels are picked up, pasted, placed on the bottle and smoothed down at the rate of one a second.

The machinery as described above is typical of that found in the larger and more progressive plants. In smaller plants the machinery, although it operates on exactly the same principle, is not fully automatic, many of the operations are performed by hand, conveyors are lacking, and the crowning and filling may be done on small machines operated by foot power.

The most popular of all the bottled soda water drinks is ginger ale. The essential ingredients of ginger ale, beside syrup, are extract of ginger root, citric acid and, frequently, red pepper. In addition, the various manufacturers flavor their extract further with various fruit juices, extracts and flavors, so that the finished product varies greatly as manufactured in different plants.

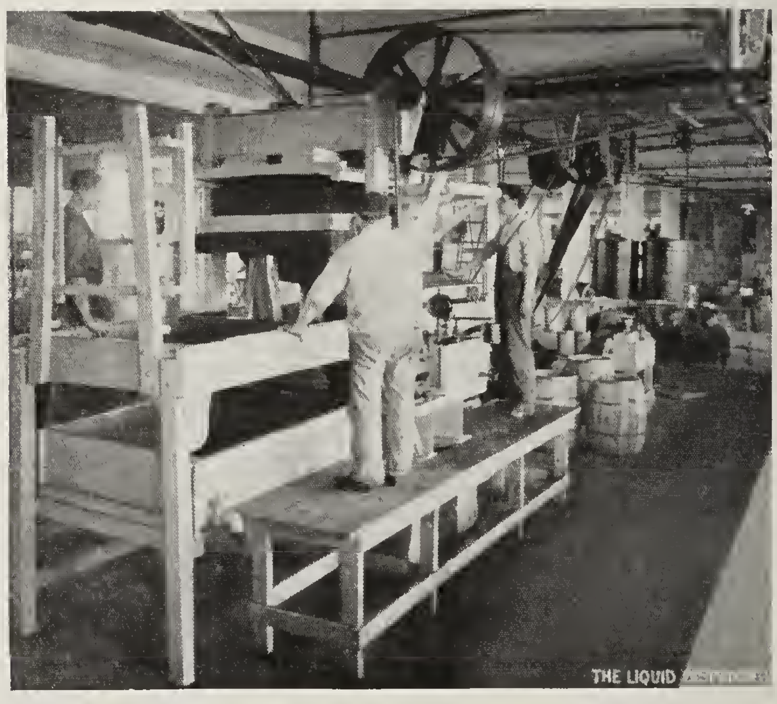


Photo by Liquid Carbonic Co.
PRESS FOR EXTRACTING PURE FRUIT JUICE.

After ginger ale comes, probably, root beer. This is a development of the old "sarsaparilla," and is flavored with an extract of ten or more roots and barks, the predominating one being sassafras.

The cola drinks are the third important variety and their popularity is growing so rapidly that they may

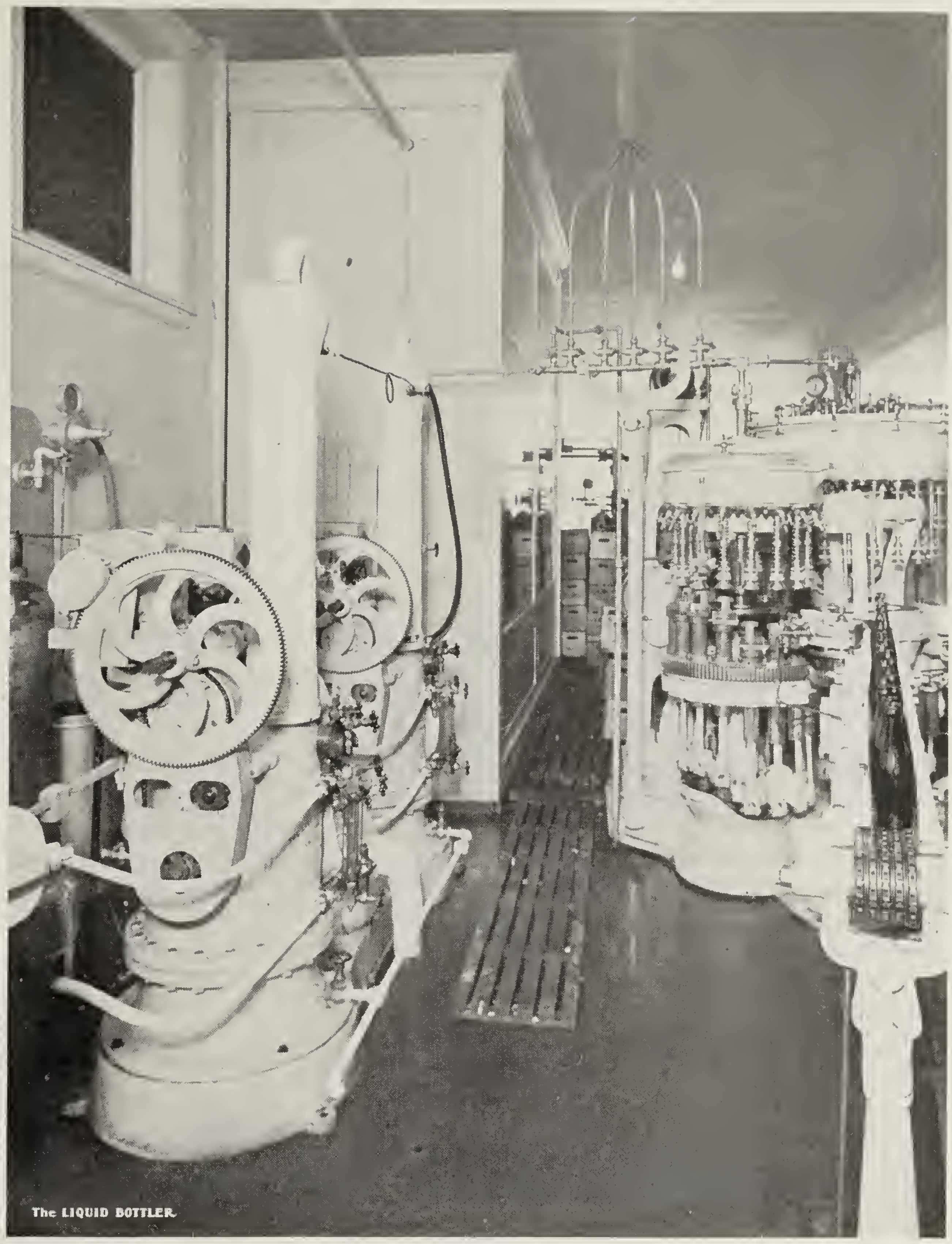


Photo by Liquid Carbonic Co.

MODERN BOTTLING PLANT SHOWING CARBONATOR, SYRUP DISPENSER AND FILLER AUTOMATICALLY OPERATED

be fairly called the "most successful form of soft drink ever invented. The characteristic flavor of the cola drinks is derived from the kola nut, a sort of a bean that grows in pods on a West African tree. The kola nut contains more caffeine than coffee, and is used by the natives to make a beverage which is considered very invigorating. Caffeine is a constituent of all true cola drinks in about the same proportion as in very weak tea. This caffeine is not derived from the kola nut, however, but is extracted from tea and added independently. The introduction of these drinks into this country was attended by the usual suspicion, slanders, and attempts at petty legislative restrictions that any improvement must expect to contend against. In this connection it is interesting to remember that the use of hops in beer, the greatest advance ever made in the art of brewing, was, for many years after its introduction, condemned, legislated against, and looked upon as a harmful adulteration.

The manufacture of bottled soda water, as an industry, is characterized by the usual virtues and failings of a business that is conducted in small units, largely by the proprietor himself. There are about 10,000 bottling plants in the United States, of which about three-fourths may be considered established, financially responsible concerns. The capital required is small. Two thousand dollars, with some credit, will give a man a respectable start, and the average yearly sales of an ordinary plant will be about $12,000. The proportionate number of large soda water bottling companies is very small.

In wet territory the main outlet of the bottling trade is the saloon. Following this in importance are the concessioners at amusement and baseball parks, fair grounds, and so on, small confectioners who have no soda fountain, pool rooms, and news stands. The sale of cases through grocery stores and direct to families varies from almost nothing to the largest part of the business, according to the enterprise and viewpoint of the proprietor. This distribution is not of a very high type, nor calculated to make the public respect bottled soda, or inspire the bottler to insist on having his product respected.

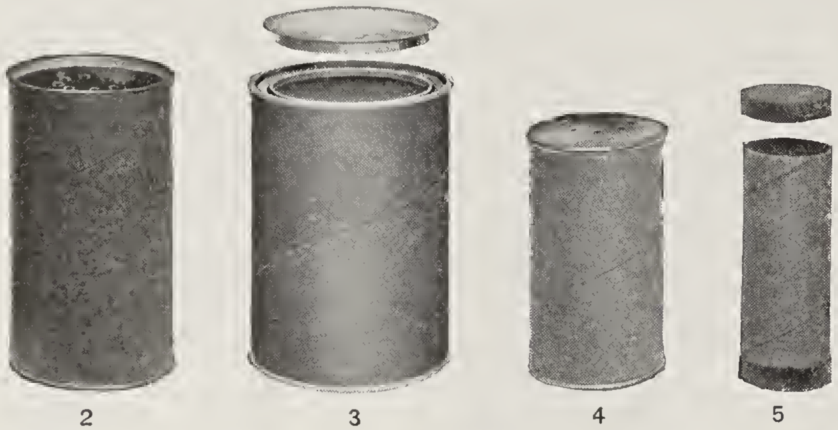
The beneficial effect of the spread of prohibition on the soft drink business is neither so direct nor so immediate as many people suppose. The bottlers generally were bitterly opposed to prohibition, because it took away from them their best customers. The enormous stimulation that comes to the carbonated beverage business when towns go dry is similar to the case of the poorly-paid, hard-working bartenders, who had their jobs torn away from them by main force and were compelled to go out and get vastly better jobs as traveling salesmen. When the bottler could no longer lean on the saloon, he found that he could do a great deal better and more profitable business through the grocery stores and direct to families.

Making Paper Cans

By The Editor

IN VIEW of the shortage of tin and the consequent use of fiber as a substitute therefor, we feel confident that our readers will be interested in a short description of the machinery used in the manufacture of paper cans. We have included the cost of production of two representative cans, one made entirely of paper and one having a tin top and bottom. In describing the machinery we have gone into detail as to the amount of labor required and the production which, under ordinary conditions, should be expected of each machine.

The data and the illustrations used come to us through the courtesy of the Samuel M. Langston Company, of Camden, N. J., and while the output of the different machines is based upon their machinery, the operation and the general process of manufacture is practically the same as that used by every manufacturer of paper cans.



SOME OF THE VARIOUS TYPES OF PAPER CANS.

The Samuel M. Langston Company has these machines in operation in such plants as those of the Quaker Oats Company (which company has in operation no less than 21 tube winders, 40 punch presses, 40 tube cutters and 8 slitters and rewinders); the National Oats Co., St. Louis, Mo.; Armour Grain Company, Chicago, Ill.; Utah Cereal Company, Ogden, Utah; Northern Illinois Cereal Co., Lockport, Ill.; Weyman-Bruton Co., New York and Chicago; Smith-Lee Company, Oneida, N. Y.; L. W. Bird & Son, East Walpole, Mass.; New England Purity Paper Bottle Co., Northampton, Mass.; Larkin Company, Buffalo, N. Y.; Lafore-Foster Company, Philadelphia, Pa.; A. P. W. Paper Company, Plattsburg, N. Y.; Corticelli Silk Mills, Florence, Mass., and the Reynolds Corporation, Bristol, Tenn.

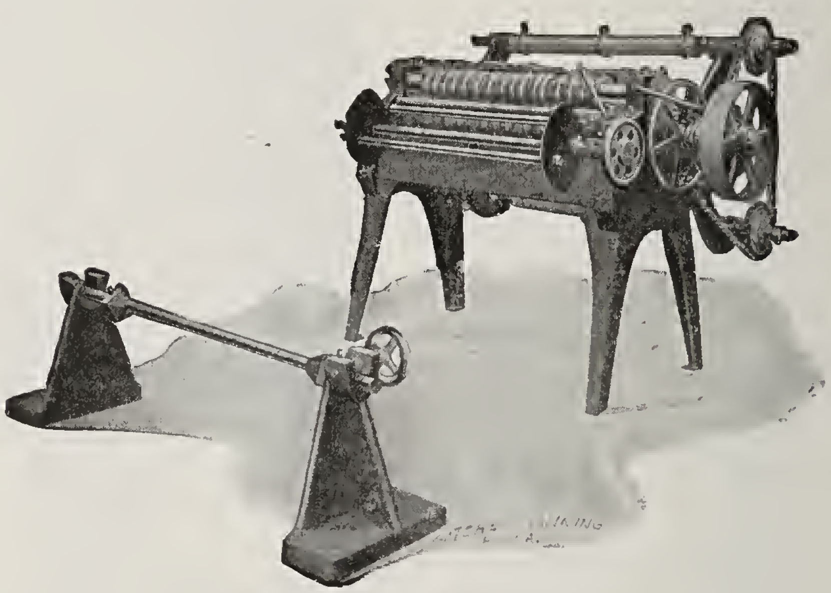
The first illustration shows a number of the different kinds of fiber cans, or paper packages, which can be manufactured with the machinery described and illustrated in this article.

The package of the Quaker Oats Company (see p. 343) is typical of an all paper can; the top and bottom, as well as the body, being of paper. The top and bottom are drawn up from one piece of straw paper and slipped over the ends of the can, and are then held in place by the label. This is the type of can being used extensively by cereal manufacturers, replacing the old-fashioned square cartons. Probably the next best-known can is the "scouring powder" can,[2] which has a metal top and bottom. Next comes the friction top or plug top can,[3] which has a removable top of tin, and a tin bottom. The "talcum powder" can[4] is another well-known type, which has a sifter top which can be opened and closed. There are a great many modifications possible in this type of package, as a casual examination of any merchant's shelves will show.

There is another type of package[5] which is, more or less, the basis of all the paper milk bottles that have been produced, namely: a paraffine paper package. These packages generally have special tops and bottoms, the body being formed from a spirally-wound tube. This type of package is being extensively used as a one-time package for delivering liquids or semi-liquids. They have extensive use for delivering oysters, ice cream, soda water, buttermilk, cottage cheese, and have even in some of the large cities replaced the "growler." They have replaced the tin can for use in marketing marshmallow whip and syrups of different kinds. There is another type of package called the damp-proof package which is made by using paper containing a layer of asphalt. This is used for salt and other hygroscopic materials.

Irrespective of what the package is used for, or how it is made, the general process of manufacture is about the same, and we shall roughly outline how these packages are manufactured, giving the estimated output of each machine.

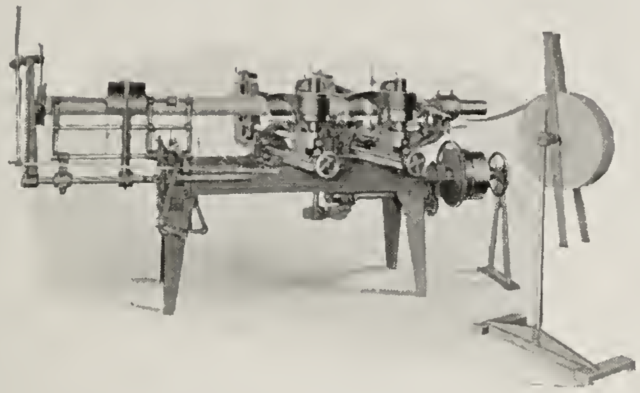
The amount of output is, as a rule, not limited by the machines, but by external conditions. As might be expected, it is at a minimum where small lots of varying sizes are run and at a maximum where the machines have sufficient of one size to run continually without change. The quality of the glue used, the paper and the skill of the operator are all factors. In the manufacture of these tubes, it should be borne in mind that a *record output at increased waste* in material is to be carefully guarded against. In other words, the labor cost is a small part of the cost of materials.



SLITTER AND REWINDER.

The paper stock is generally bought in rolls 36 to 48 inches in width and these rolls are cut and rewound on a "slitter and rewinder." This machine will cut large rolls into narrow rolls 2 to 5 inches wide and 20 to 24 inches in diameter. A man can cut from 5,000 to 10,000 lbs. of paper per day, varying with the weight of stock, width of rolls, and number of changes he has to make in the width of strips he is cutting.

For large installations—those contemplating the use of three or more tube winders—there is available a machine which will handle large rolls direct from the mill, thus enabling one to contract on most advantageous terms for paper. These machines slit and rewind the paper into extremely hard rolls of required widths and in diameters up to 32 inches on a standard machine, and even larger diameters when such are desired.

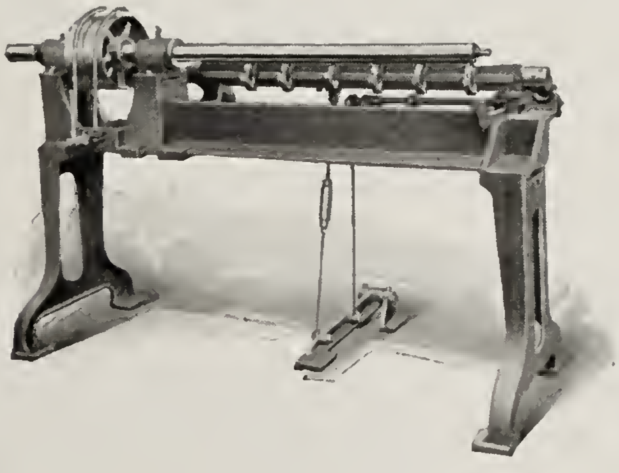


TUBE WINDING MACHINE.

These narrow rolls of large diameters, which are cut from the big roll, being wound so hard, run perfectly true in feeding to the "tube winder" or "punch press," and due to the greater amount of paper contained make it unnecessary to renew the unwinding roll as frequently as would be the case on rolls of smaller diameter wound on the tension or center rewinding principle which is used on smaller "slitters."

The large "slitters" are also equipped with a special moistening device for preparing the stock ready for the punch presses in which the paper tops and bottoms are drawn up.

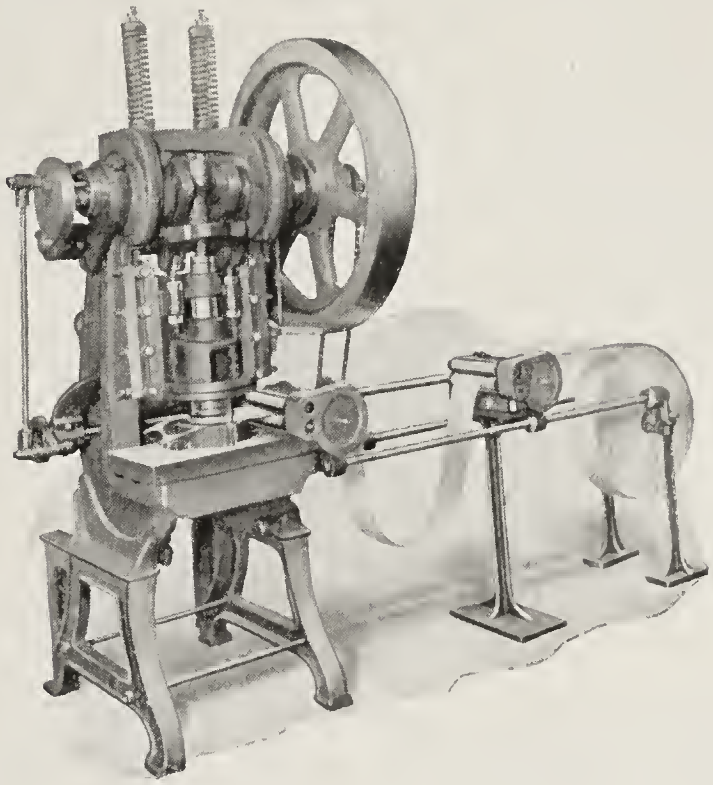
In making 2-ply tubes, two of these rolls are fed simultaneously to the spiral tube winding machine, one glued and one unglued; for 3-ply tubes three rolls are used, two glued and one unglued. This machine once started runs automatically to the ends of the rolls of paper, gluing, winding and cutting the tubes into accurate lengths of 12 inches and up. It can be adjusted in 10 to 20 minutes from a tube 1 inch in diameter to 5 inches and of any length desired. It has a minimum output of 30 lineal feet per minute. The speed depends, as has been stated, not on the machine itself, but on the size of the tube and the demands made on the machine by the output required. It is on this machine that waste counts for or against profit. In installing a machine the manufacturers generally start it at about 30 *feet per minute as a speed best suited to breaking in an operator*, and then speed up to the maximum output according to the conditions it is to work under. These machines are actually running day in and day out at better than 60 lineal feet per minute.



TUBE CUTTER.

If the product were to be used as mailing tubes, cores for winding paper and similar work requiring long tubes, it could be finished on the tube machine without further handling. In making paper boxes or paper cans the long tubes as they come from the winding machine are taken to the tube cutter, where they are cut up into short lengths with clean cut edges. An *energetic* operator on this machine can about keep up with a tube machine running 35 to 40 feet per minute, provided he does not have to change his sizes more than once or twice a day. The output of this machine *depends entirely on the operator*, as it is essentially a hand-operated machine and only works when the operator works. The work on this machine and on the slitter and rewinder is more suited to men and boys than to girls. The spiral tube machine can be run by either, but is generally run by men or boys.

The machinery for tops and bottoms, either paper or tin, in making round boxes or cans, is all tin can machinery, the paper tops and bottoms being drawn up on what is called a double acting press. These can be drawn hot or cold, preferably hot, and at a speed of 100 to 125 pieces per minute. The paper is handled in rolls with an automatic feed. The paper has to be moistened or tempered with a solution of soap and water. This is best done before coming to the punch press. There is furnished what is called a moistener for this work. The tin tops and bottoms can be made on a plain or on a double acting punch press, according to their shape and size.



DOUBLE ACTING PRESS.

In a plant running at full capacity on one size box with paper top and bottom, such as the cereal manufacturers use (4 1/16x7⅛ inches), a unit of machines consisting of one tube winder, two tube cutters, two punch presses with automatic feed, one moistener and one slitter, is operated by five men as follows: One on the tube winder, two on the tube cutters, one on the two punch presses, one on the slitter and moistener. This outfit will turn out at least 30,000 cans and may run as high as 40,000 cans per ten hours under exceptionally good conditions.

A unit of 3 tube winders, 4 or 5 tube cutters, heavy duty slitter and rewinder with special moistening device built with slitter and 5 punch presses will produce at least 100,000 cans of this size in the same length of time.

The smallest unit plant which can be installed for making paper cans is 1 tube winder, 1 tube cutter, 1 small slitter and rewinder, which would make paper cores or tubes without tops and bottoms. For drawing up the paper tops and bottoms there would be required a double acting punch press with automatic feed and a 6-inch moistener for preparing stock for the press. The output of this plant would be from 10,000 to 15,000 cans with two or three operators.

In figuring on materials from samples, of course the weight of the body of the box includes the glue. One pound of good ground glue will treat from 200 to 300 square feet of surface. The total waste on bodies will run from 5 to 10 per cent, according to the operator.

In figuring caps, weigh samples and add 40 per cent to cover all waste, remembering that a round cap is cut from a square piece of board and a margin of 1/16 inch has to be allowed on all four sides.

By way of illustration, we give some detail cost figures. These are not "estimated" figures, but an average cost per 1,000 for a day's run with a crew having about three months' experience.

In making an all-paper can with drawn paper top and bottom, such as is being used by the cereal manufacturers, the cost of labor will vary with the size of plant and different wage rates. The cost per operation is so small, and total labor relatively so small compared to the material, that economy in material is more important than economy in labor. The figures per thousand follow:

Labor	30c to $ .40
Tube stock, 120-lb. at $55.00	3.30
10 per cent waste	.33
Cover stock, 48-lb. at $70.00	2.16
34 per cent waste (cutting round discs out of square pieces)	.74
Glue (cold) 13 lbs. at 6c	.78
Total	$7.71

Cost of wrapping boxes on piece work runs from $1 to $1.20 per 1,000, and the putting on of tops and bottoms from 25c to 35c per 1,000.

When making a scouring powder can in a single unit plant (one tube winder, one slitter and one tube cutter) running at an output of 15,000 cans per day, the cost per thousand would be as follows:

Labor	$ .65
Tube stock (18 point 2 ply) 50 lbs. at $55.00	1.38
10 per cent waste	.14
Tin tops and bottoms at $8.50 per box, 112 sheets, 14x20	5.66
Glue (hot glue; 1½ pounds at 28c)	.42
Total	$8.25

Labor includes labeling, crimping on tops and bottoms, punching out tops and bottoms, as well as molding body of can. The labels were put on in sheet by hand.

The figures as to the cost of materials are, of course, subject to market conditions and *must not be considered as representative figures* as to what one should pay. It should be borne in mind that the quantity of glue used is a variable one, depending on the operators and on the glue; that waste will never run below 5 per cent and should never exceed 10 per cent; and that these figures are for labor, waste and material only, no overhead expense being included.

Care of Confectionery

By Walter C. Hughes,

Secretary, National Confectioners' Association.

This is the third of a series of six articles which is being published monthly relative to the above subject. The first dealt with the subject in a general way; the second with Chocolates and Chocolate Confections; this, the third, treats of Hard Boiled Candies; the fourth will deal with Nut Candies; fifth, Marshmallow, Fudges and some other special kinds; and the sixth will be a general summary of the entire subject with suggestions relative thereto.

"OH, it's sticky!"

"Yes, and my dear sir, it will stay sticky forevermore, if you don't keep the cover on that glass jar."

"Well, it should be made so that it won't get sticky!"

"No, it should not any more than butter ought to be made so that it will not melt when exposed to heat."

"Well, anyhow—"

"No, not 'well anyhow,' or but, or maybe, the fact is, that you don't know how to take care of hard boiled candies. You take the covers off the tin cans and glass jars, leave them open, let the dampness get in, and then holler and roar because they are sticky, and cuss the manufacturer for that for which you are wholly to blame."

My friend, the retailer, looked at me somewhat reproachfully for having told him the truth—the truth hurts sometimes—but it's quite refreshing and a decided stimulus.

The next time I walked into his store, I noticed the covers were where they belonged, and the candy in the cans and jars was nice, dry and loose.

Just thoughtlessness—sometimes it's carelessness, and more frequently ignorance, and that's why the manufacturers hear so many complaints about "*sticky hard goods.*"

In the early stages of my experience in the candy game, I used to think that hard boiled candies could be made so that they would "stand up under any and all conditions of treatment or weather."

The other fellow's goods always stood up, never had any trouble with them—retailers could set them out in the rain, and they wouldn't get sticky, and all that.

Such was the sincerely confidential information that our salesmen always poured into the sympathetic ear of the "Boss," and the "Boss" would go upstairs and raise the devil with the superintendent, and that poor, perplexed soul, with a faraway look in his eyes would murmur to himself:

"Hell is not a future state—it's right here in this immediate present—in this candy factory."

Then I began to look around—to investigate.

One day I sat down by the fellow whose candy even rain wouldn't make sticky. Cautiously I approached the subject. I didn't want to insult or offend him.

"Say, Hank! Did you ever have any trouble with your hard boiled goods getting sticky?"

His answer was a decided surprise.

"Well I should say so!"

"What's the trouble?"

"Retailers don't know how to take care of it."

That was an illuminating thought. Hank was right.

Hard boiled candies, if properly made, will not become sticky under ordinary conditions, if proper care is used by the retailer, after they are placed in stock, but no hard boiled candies, no matter how carefully made, or how much sugar they may or may not contain, will stand up when the atmospheric conditions are unfavorable, if the covers are left off of the jars, cans or boxes.

You may as well expect that butter would not melt in places where the sun would shine on it.

The very nature of the materials of which a great many hard boiled candies are composed, make such a condition inevitable.

Such candies are very high in food value, they are easily digested, the children like them and the retailer should pay particular attention to their care.

When made entirely from sugar, they are less susceptible to atmospheric conditions than when part corn syrup is used. Sugar attracts moisture, but not to so great an extent as corn syrup, which when boiled and made into candy, like any other syrup or molasses, is very susceptible to unfavorable atmospheric conditions.

It is not my purpose to enter into any arguments, pro or con, as to the merits of one kind or another. Both are pure, wholesome, high in food value and mighty good eating.

Both serve their purpose in a most excellent way, but intelligent care is as necessary with one kind as with the other.

Hard boiled candies should always be kept in glass jars or tin cans, preferably the former for display reasons. There are, however, tin cans on the market that have windows in them, that are very effective for display purposes.

It is essential that the customer should see the candy—otherwise, desire will not be created—and that brings us to the question of the attractiveness of the candies.

Usually, hard boiled candies are more attractive to the eye than other kinds. The pretty stripes on stick candy attract the children's attention and create desire.

Color has direct relation to palatability.

If you don't believe it, try and experiment on yourself.

Color some butter with just a grain of red color. Spread it on a piece of bread and try to eat it. You will be surprised at the disagreeable taste, not because of the color, oh no! The color is perfectly tasteless, but because the red butter is something that your subconscious self has not been accustomed to—it affects your mind and taste nerves and it does not taste right—that's all—a perfectly natural result.

Now with the candy, as it is with a red apple, the color attracts the eye, desire is created, and the color increases the palatability because the taste nerves are simulated. Blue spinach would taste like medicine.

But back to the packages.

They should always be kept tightly covered. Even a few minutes contact with the air will often cause the candy to become sticky, especially if in a locality near the seashore or a lake, where there is a great deal of humidity in the atmosphere.

If the candy does become slightly sticky and "sets," don't try to pry it apart with a pick, or bang the can or jar on the counter or shelf to break the candy apart.

Just set it to one side, properly covered, and in a short time it will have absorbed what little moisture there was on the outside of the candy and it will be nice and dry and if given a gentle tap, will easily fall apart.

If it is in a mass and lump that won't come apart, send it back—it has not been made right.

One day I saw a retailer with an ice pick, prying and gouging away in a pail of stick candy.

"What the dickens are you tryin' to do?" I asked.

"Oh, I am trying to get this blamed stick candy pried apart—it's *stick* candy, alright!"

I showed him how he could take the packages and with gentle taps, separate the sticks very easily. He thought it was necessary to use a sledge.

Packages of stick candy that have "set" somewhat can frequently be very easily separated by holding them and placing one of the corners on the counter and with your hand on the diametrically opposed corner, press down very slightly and at the same time, rotate the package, working it back and forth; with gentle treatment in this manner, the sticks will usually fall apart without any trouble unless they are very badly stuck together.

Keep hard boiled goods away from the immediate vicinity of a stove or heater. Excessive temperature is as detrimental for keeping in good condition as excessive moisture.

Finally, and once more, keep constantly in mind:

Covers tight,
Candy right;
Covers loose,
Candy juice.

Wisconsin Pea Packers Case.

In February, 1917, an action for the dissolution of the Pea Packers' Association was brought by the attorney-general of Wisconsin on the ground that it was organized for the purpose of controlling the output and fixing prices. The association replied by bringing their books before the court and voluntarily giving the prosecution all the information in their power as to just what they were trying to do. It developed that the association was organized to advertise Wisconsin peas to the consumer; that in order to do so it was first necessary to standardize the grades and sizes, and that a great deal had already been done on the subject of cost accounting, and the securing of uniformity of grades, sizes and quality. It absolutely denied any intention to regulate output or fix prices. In view of the facts presented, the attorney-general asked for the dismissal of the case, which was granted.

Food Reviews

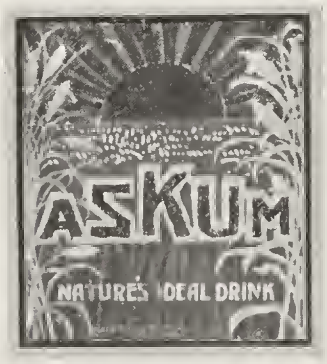
VEGETOLE.—Manufactured by Armour & Co., General Packers, Chicago, Ill. Sold in tin pails, net weights being, respectively, 1 lb. 8 ozs., 2 lbs., 5 ozs., 4 lbs. 2 ozs., and 8 lbs. 10 ozs., price from 26c to 30c a pound.

Under the name of *Vegetole* Messrs. Armour & Company recently presented to the American market a lard alternative. This product is hydrogenated cottonseed oil, quite without flavor and fully sterilized. It has been found that by incorporating hydrogen therewith olein can be changed to stearin, the only difference between olein and stearin being that there is more hydrogen in the latter than in the former As soon as this difference is remedied the oil that was olein becomes the solid stearin. Such is *Vegetole*, and it is in truth a vegetable oil turned hard by one of the cleverest manipulations in food chemistry.

Vegetole differs slightly from lard; it differs from mixtures of cottonseed oil and oleo-stearin; and it differs from cottonseed oil. The hydrogenated oils have formed a class by themselves and they bid fair to constitute a most important part of what are known as cooking fats. It is probably this element of *sui generis* which prompts the present manufacturers to refer to *Vegetole* as "Not a substitute, but rather an alternative for lard." That *Vegetole* will be used to take the place of lard is, of course, a foregone conclusion. To many of us the word substitute bears no evil meaning, and yet it can be realized that commercially it is perhaps wise to avoid that much abused term. Let us then greet lard's alternative, *Vegetole*. It is sweet and wholesome and nutritious, and easily digested. It can be used for all purposes for which lard is used. As a shortening agent, whether in bread, pie-crust or biscuits, it gives an excellent account of itself and as a medium for frying it has many points to commend it.

ASKUM—Manufactured by The National Food Products Co., 20 East Jackson boulevard, Chicago, Ill. Packed in glass for families in 1 pound and ½ pound packages. Druggist's packages, 5 pounds, in tin. Price (family sizes), $1.00 per pound.

Askum is a malted cereal product designed to enrich milk and milk drinks, particularly as sold by soda fountains. Most of the starch of barley and corn are converted by malting and mashing into maltose and dextrin. It is a dry, chocolate colored powder. With the addition of fresh milk and some flavor such as vanilla, chocolate or pineapple, it makes a delicious drink, and with ice cream or egg it makes an appetizing luncheon, giving plenty of nourishment for the afternoon.



ANALYSIS OF ASKUM.

	Per cent.
Moisture	8.37
Ash	0.8
Protein	4.00
Fat	0.63
Maltose	55.12
Other carbohydrates (dextrin and starch)	31.08

The Columbus Laboratories, in giving their opinion on the tests for diastase and digestible starch, said "There is an increase of nearly 15 per cent of total sugars obtained by direct fermentation over that obtained by reduction (the ordinary laboratory method of determining sugar) thus showing that the diastase present has produced material results. Further than this, the amount of sugar thus produced in this and other determinations, shows that substantially all starch present is in a condition to be readily converted by active diastases such as are normally present in the alimentary tract."

Two typical recipes for the serving of Askum are as follows:

Combination No. 1—Milk, 7 ounces, ice cream, 2 heaping teaspoonfuls; chocolate syrup, 1 to 2 ounces, Askum, 2 heaping teaspoonfuls.

Combination No. 2—Milk, 7 ounces; ice cream, 2 heaping teaspoonfuls; chocolate or vanilla syrup, 1 to 2 ounces; Askum, 1 ounce; 1 egg.

Askum has come into existence, and is well calculated, to supply the increasing demand for light, easily digestible, and at the same time sustaining lunches. Business men and women who must eat hurriedly at noon, and who can not afford to undergo the stupefying effect of ordinary more or less heavy foods, find in it an almost ideal nourishment. As prepared in combination No. 2 it contains a sufficient amount of each one of the important food elements to prevent recurrence of hunger during the afternoon and in such form that they are easily and quickly assimilated, with very slight task on the digestive apparatus.

Sweet Feed Association Organized.

The Sweet Feed Manufacturers' Association was organized on May 9th at a meeting held at the Hotel Chisca in Memphis. The following officers were elected: Will A. Hall, of Memphis, president; E. Wilkinson, of Birmingham, vice-president; G. E. Patteson, of Memphis, treasurer; and P. M. Birmingham, secretary. The permanent office of the association is in the Bank of Commerce Building, Memphis. The sweet feed manufacturers make a stock feed by mixing ground grain and molasses. The molasses is a by-product of the manufacture of sugar and is the residue remaining after all the crystallizable sugar has been abstracted. It is useless for human food. A typical sweet feed is composed of corn, oats, cotton-seed meal, alfalfa and molasses and will analyze: Protein 12.95 per cent, fat 2.9 per cent, carbohydrates 52 per cent, and fibre 12 per cent. Wheat bran, linseed meal, dried brewers' grains, screenings, and many other by-products can be utilized in making sweet feeds. The principal object of the organization of the new association is to educate the stock raiser as to the desirability of sweet feeds both as regards nourishing power and economy.

No Suspension of Child Labor Laws.

Suggestions, emanating from the canners, have been made that the Child Labor laws be suspended during the canning season. The reasons advanced were that the labor only requires a short time, is performed in healthful surroundings, and is light enough to be adapted to the capabilities of a child. The shortage of labor, in the opinion of those back of the movement, justified this action. In reply to the suggestions, Lewis F. Post, Assistant Secretary of Labor, has written to Frank E. Gorrell, Secretary of the National Canners' Association, in part, as follows:

> "This Department certainly greatly regrets that any such suggestions should be made. As you are in position to bring this matter directly to the attention of the canning industry, I would appreciate it if you would take such steps that you think advisable to discourage this sentiment.
>
> "As you already know, this Department is organizing boys of sixteen years and up into the Boys' Working Reserve. The response to the Department's request is very encouraging; we expect that there will be a very large organization in a short time, and that a considerable proportion of the boys in it will be in localities convenient for the canning industry's needs. We have considerable reason to hope that we can take care of the canners this season, at least in a measurable degree. On this account, if no other, agitation looking toward a lowering of the standards is quite ill-advised."

Book Reviews

WATER PURIFICATION PLANTS AND THEIR OPERATION.—By Milton F. Stein, Assistant Engineer, Cleveland Filtration Plant. John Wiley & Sons, Inc., New York, N. Y. 258 pp. $2.50.

While the primary purpose of this book was to give definite instructions for the operation of water purification plants, it is, perhaps, of as great value to those who are not technically educated in the chemistry of water and who are desirous of obtaining an intelligent insight into modern methods of purifying water supplies. At the present time a very large part of the potable water of this country is purified in one manner or another. Before long practically every gallon of drinking water will be put through purifying processes. Wherever the subject is of immediate interest Mr. Stein's book should be on hand. It supplies just the sort of data which is necessary to a clear comprehension of water purification in all of its many aspects.

FOOD POISONING.—By Edwin Oakes Jordon, Chairman of the Department of Hygiene and Bacteriology, The University of Chicago. The University of Chicago Press, Chicago, Ill. 115 pp. $1.

In the main this book is well deserving of the highest praise. The author has made effective for the use of the lay reader the results of long years of careful investigation. Many epidemics due to food poisoning are analyzed and discussed in the light of the most recent discoveries in connection with the subject,. A number of old superstitions are given their quietus in masterly fashion. Just why Dr. Jordon, when discussing "notorious adulteration" should see fit to refuse to differentiate between the quite illegitimate addition of ground olive stones to pepper and the entirely justifiable manufacture of candy from glucose is somewhat hard to understand. Both sucrose and commercial glucose have their proper place in candy making. Again, in regard to food colors the author, as he has every right to do, gives it as his personal opinion that the coloring of candy is unnecessary. This is of course a mere *obiter dictum* and is given as such. But when Dr. Jordon speaks of "the use of poisonous aniline dyes for staining candies" without mentioning that the eight permitted aniline dyes are certified as harmless by the United States Government he is likely to convey, probably unintentionally, the impression that *all* colored candies owe their brilliancy to poisonous aniline dyes. Such loosely worded characterizations are not often met with under Dr. Jordon's signature.

Liberty Convention of Wholesale Grocers.

Alfred H. Beckman, secretary of the National Wholesale Grocers' Association, sent out the following telegram on May 16th, calling a convention in Chicago: "The officers and executive committee of the National Wholesale Grocers' Association of the United States, after fully considering all phases of holding an annual meeting this year, have unanimously decided to call a Liberty Convention in Chicago. Under existing war conditions, Washington as a meeting place was impossible, but recognizing the need of all wholesale grocers being fully informed, and in order that they could in many ways assist our government in the present crisis, especially as relates to the assembling and distribution of foods, the convention will prove beneficial to our government first, and second to the Association."

The convention will be held at the Congress Hotel in Chicago on June 20th, 21st and 22nd. The meetings of committees will begin Monday, June 18th, at 10 a. m., with the meeting of the executive committee. On Tuesday at 10 a. m. the board of directors meets with the educational committee. At four in the afternoon, the economy conference committee meets. On Wednesday at 4 p. m. the canners' conference and foreign trade relations committees meet. All these meetings will take place in the Francis 1st room, on the main floor.

The convention program follows:

WEDNESDAY, JUNE 20, 1917, 9:30 A. M.

Convention called to order by President Theodore F. Whitmarsh.

Invocation: Rev. Frank C. Bruner, LL. D.

Address of Welcome: Mayor William Hale Thompson.

Response in behalf of the Association: Mr. W. C. McConaughey, first vice-president.

Address: John W. O'Leary, president Chicago Association of Commerce.

President's address.

Reports of officers.

Organization of nominating committee.

Report: Pure Food and Legislative Committee, Mr. Fred R. Drake, chairman.

Address: Honorable John B. Newman, food commissioner of Illinois.

Report: Canners' Conference Committee, Mr. W. B. Timms, chairman.

Address: Mr. Henry Burden, president National Canners' Association.

THURSDAY, JUNE 21, 1917, 9:30 A. M.

Reports: Education Committee, Mr. Arjay Davies, general chairman; Mr. F. W. Fiske, director.

Education of the Jobber Committee, Mr. Harry K. Huntoon, chairman.

Co-operation with Retail Grocers' Committee, Mr. Sylvan L. Stix, chairman.

Address: Prof. C. F. Kurtz, extension division, State University of Iowa.

Report: Cost Research and Statistical Committee, Mr. Robert G. Bursk, chairman.

Address: Dr. Melvin T. Copeland, director Bureau of Business Research, Harvard University.

Reports: Food Encyclopedia Committee, Mr. P. C. Drescher, chairman.

Fire Prevention Committee, Mr. D. C. Shaw, chairman.

Honest Advertising Committee, Mr. J. C. Lester, chairman.

Address: Prof. Paul H. Nystrom, formerly of Wisconsin University.

Report: Metric System Committee, Mr. Fred R. Drake, chairman.

Address: Dr. George F. Kunz, president American Metric Association.

Reports: Federal Trade Commission Committee, Mr. Oscar B. McGlasson, chairman.

Postal Service Committee, Mr. Warren Goddard, chairman.

Address: Dr. S. W. Stratton, director Bureau of Standards, Department of Commerce, Washington, D. C.

7 p. m.: Annual subscription dinner and dance, proceeds to be donated to American Red Cross Society.

FRIDAY, JUNE 22, 1917, 9:30 A. M.

Address: Honorable Bert M. Fernald, U. S. Senator from Maine.

Response in behalf of the Association, Mr. O. J. Moore, fifth vice president.

Report: Foreign Trade Relations' Committee, Mr. Arthur P. Williams, chairman.

Address: Dr. E. E. Pratt, chief Bureau of Foreign and Domestic Commerce, Department of Commerce, Washington, D. C.

Reports: Food Geography Committee, Mr. O. C. Mattern, chairman.

Economy Conference Committee, Mr. George E. Lichty, chairman.

Address: Frank R. Seelye, president National Coffee Roasters' Association.

Address: Mr. John H. Schaefer, president National Association of Retail Grocers.

Address: Mr. R. R. Moore, first vice president American Specialty Manufacturers' Association.

Reports of Committee Chairmen: Discount for Cash Committee, Mr. Robt. J. Roulston; Membership Committee, Mr. B. B. Cushman; Uniform Tares Committee, Mr. Geo. W. Ferguson; Contracts' Committee, Mr. J. D. Calhoun; Containers' Committee, Mr. C. E. Hanscom; Arbitration Committee, Mr. Austin L. Baker.

Report of Nominating Committee and election of officers and directors.

Report of Resolutions' Committee, Mr. W. C. McConaughey, chairman.

Consideration of next annual meeting place.

Meeting of new Executive Committee.

Recent Patents

The following patents of interest to readers of this journal recently were issued from the United States Patent Office. Copies thereof may be obtained from R. E. Burnham, patent and trade-mark attorney, Real Estate Trust Building, Washington, D. C., at the rate of 20 cents each. State number of patent and name of inventor when ordering:

1,223,468. Scraper attachment for fish-cleaning machines. Benjamin R. Brierly and Edward H. Waugh, Seattle, Wash., assignors to Smith Cannery Machines Co., same place.

1,223,687. Candy-coating machine. William Fritz, Philadelphia, Pa.

1,223,790. Method of making the meat of sea mammals fit for food. Gustav A. Holzapfel, Leipzig, Germany.

1,224,600. Scrap-separating apparatus for dough-cutting and similar machines. John Carr and George S. Baker, London, England.

1,224,620. Coffee-roaster. Pasquale Ezzo, Newark, N. J.

1,224,710. Apparatus for treating eggs. Victor Clairemont. Petaluma, Cal.

1,224,711. Apparatus for preserving eggs. Victor Clairemont, Petaluma, Cal.

1,224,901. Apparatus for pasteurizing, cooling and ripening milk, cream and other liquids. Frank Chadima, Cedar Rapids, Iowa, assignor to J. G. Cherry Co., same place.

1,224,923. Fish-cleaning device. John W. Haubner, Friday Harbor, Wash.

1,224,951. Process of making starch and products thereof. Charles C. Moore, Washington, D. C., assignor of one-half to Frederick C. Stevens, Attica, N. Y.

1,224,981. Apparatus for pasteurizing, cooling and ripening milk, cream and other liquids. Stephen J. Van Kuren, Cedar Rapids, Iowa, assignor to to J. G. Cherry Co., same place.

1,225,138. Candy-pulling machine. John E. Knecht, Batavia, Ill.

1,225,450. Composition of fruit matter for food production. Alice Macleod, San Jose, Cal.

1,225,481. Dough-sheeting machine. Ole C. and Johan A. Nubson, Duluth, Minn.

1,225,530. Casing for sausages and process of preparing. George B. Twitchell, Cincinnati, Ohio.

1,225,634. Dehydrating or drying apparatus. George F. Humphrey, London, England, assignor to Alliance Vegetable Company, Limited, same place.

1,225,774. Apparatus for cooling sterilized or cooked canned goods. Justin B. Cook, Tempe, Ariz.

1,225,798. Method of producing smoke for curing meats. Ralph J. Gaudy, Detroit, Mich.

1,225,838. Fruit-stoning apparatus. Bernhard Mai, West Hoboken, N. J.

1,225,864. Baker's peel. Leon Schlager, New York, N. Y.

1,225,877. Method of preparing tubers for manufacture of dough or flour for bread bakers' wares. Ernst Simons, Cassel, Germany.

1,225,878. Method of preparing legumes for the manufacture of dough or flour for bread and bakers' wares. Ernst Simons, Cassel, Germany.

1,226,248. Machine for molding dough and the like. Louis C. Reese, Saginaw, Mich., assignor to Werner & Pfleiderer Co., same place.

1,226,249. Machine for molding dough and the like. Louis C. Reese, Saginaw, Mich., assignor to Werner & Pfleiderer Co., same place.

1,226,250. Machine for molding dough and the like. Louis C. Reese, Saginaw, Mich., assignor to Werner & Pfleiderer Co., same place.

1,226,251. Machine for molding dough and the like. Louis C. Reese, Saginaw, Mich., assignor to Werner & Pfleiderer Co., same place.

1,226,252. Charging and discharging of automatic ovens, proofing-chambers, and the like. Louis C. Reese, Saginaw, Mich., assignor to Werner & Pfleiderer Co., same place.

1,226,253. Charging and discharging of automatic ovens, proofing-chambers, and the like. Louis C. Reese, Saginaw, Mich., assignor to Werner & Pfleiderer Co., same place.

1,226,347. Yeast substitute. John O. Lumsden, Seattle, Wash.

1,226,418. Vegetable and fruit peeling machine. Josephine Trust, Brooklyn, N. Y.

1,226,439. Beverage and process of making same. John Ashus, Roxbury, Mass.

1,226,592. Continuous exhaust-box for preserve-containing cans. Henry C. Privett, Long Beach, Cal.

1,226,593. Continuous agitating cooker. Henry C. Privett, Long Beach, Cal.

1,226,824. Method and apparatus for coating chocolates. Dale G. Steely, Cambridge, Mass.

1,226,831. Apparatus for treating cocoa and other pulverulent material. John Walter, Boston, Mass., assignor to Massachusetts Chocolate Co., same place.

1,226,845. Meat-smoking trolley. Alonzo N. Benn, Chicago, Ill.

1,226,983. Process of digesting and concentrating protein in any form by dissolving in grape-juice. Eudo Monti, Turin, Italy.

1,226,999. Process of desiccating eggs Thusnelda C. Primavese, Corona, N. Y.

1,227,002. Art of puffing cereal grains. Arthur J. Rhoades, Philadelphia, Pa.

1,227,184. Process of making malt syrup. Henry T. Neidlinger, Oswego, N. Y.

Confectioners Meet at Rochester.

The annual convention of the National Confectioners' Association of the United States was held in Rochester May 15th to 18th. The attendance of 537 was the largest in the history of the Association. The following officers were elected: President, R. R. Cleeland, of Springfield, Mass.; vice-presidents, Paul F. Beich, of Bloomington, Ill., and A. S. Colebrook, of Rochester; secretary-treasurer, Walter C. Hughes, of Chicago. Executive committee, V. L. Price, of St. Louis; Frank E. Gillen, of Lincoln, Neb.; H. H. Harris, of Lynchburg, Va.; George E. Close, of Cambridge, Mass.; J. K. Farley, Jr., of Chicago; F. A. Chappell, of New York, and W. C. Bidlack, of Lancaster, Pa.

Following the addresses of Roland B. Woodward, on behalf of the city of Rochester, and of Retiring President Kuhn, the report of the executive committee was read by George F. Schrafft. It announced the employment as special officers of Thomas E. Lannen, general counsel; Dr. A. P. Bryant, consulting chemist, and Walter C. Lindsay, traffic secretary. The report authorized the secretary to compile statistics relative to the output of confectionery in the United States, and to promote educational work educating the public as to the purity and food value of candy.

The report of Secretary Walter C. Hughes stated that during the eight months covered by his report, 62,650 pieces of mail matter had been sent out. The work of the state legislative committee had been unusually heavy on account of the large number of legislatures in session this year. General Counsel Thomas E. Lannen had submitted 1,962 copies of bills with opinions relative to them. Fifteen hundred newspaper articles relating to candy were received and read, and all that were of a derogatory character were carefully investigated.

McCabe Moves to New Offices.

George P. McCabe, attorney-at-law, has removed his office to Suite 404-406, Harris Trust Building, Chicago. His telephone number is Central 287. The change was made on the 16th of May.

The Sardine Industry in Maine

By H. M. Loomis,

Director of Sardine Inspection, National Canners' Association.

THE packing of sardines, which is one of the most important industries of Maine, had its beginning about the year 1875, but its development may be said to have begun in the year 1883, when it passed out of the experimental stage and several rival concerns entered the field. From an output of a few hundred cases the first year, the industry has grown until there are now about fifty-five factories in operation, and the annual pack averages between two and two and one-half million cases, about three-quarters of which contain a hundred ordinary cans of sardines in oil, and one-quarter are cases containing forty-eight large cans of sardines in mustard sauce.

Sardine canneries are located along the Maine coast, all the way from Eastport to Portland, but the center of the industry is on Passamaquoddy Bay, through which passes the boundary line between Maine and New Brunswick. In the cities of Eastport and Lubec, on that bay, are situated about 25 factories.

The Maine sardine is prepared from the small sea herring, which is very abundant along the Maine coast during certain seasons of the year. These small fish feed along the shore, and, becoming very fat and tender during the canning season, are well suited for the preparation of a palatable and highly nutritious food product. They belong to the great herring family, among which are also included the Norwegian and French sardines.

The fish are commonly taken in traps, known as weirs, consisting of circular or heart-shaped inclosures, formed by upright stakes to which netting is attached, and into which fish are directed by barriers across their natural course of travel, and from which their escape is prevented by the form of the opening. When the fish have entered this weir in considerable numbers, their presence is readily detected by the fishermen, and they are captured and transferred to boats by encircling them with a seine which is gradually drawn together until they are so closely confined that they can be dipped into open boats. The fish are carried to the factories in power boats, holding usually from ten thousand to fifty thousand pounds of fish. They are then conveyed by sluices and running water to the factory, where they are placed in strong brine or pickle for one or two hours. Afterwards they are spread on galvanized trays and either steamed and then dried, or dried and afterwards fried by a continuous conveyor passing through hot oil. A few Maine sardines are also smoked and after cooling they are packed in cases by women. The cans are then filled with oil mechanically and passed through the sealing machine. They are then processed or sterilized by heating for one and one-half to two hours. The cans are usually cleaned while hot, and after cooling they are tested and packed in cases for shipment.

As stated above, there are two principal types of American sardines: First, the sardine in mustard sauce, these fish being usually steamed and packed in a sauce containing mustard, pepper, cayenne, tumeric, and other spices, mixed with vinegar. Second, sardines in oil. The oil most commonly used is salad oil prepared from cotton seed. There is a continually increasing amount being packed in olive oil, and peanut and corn oil have also been tried to some extent. Sardines in oil may be either fried, smoked or steamed, and they are sometimes flavored by the addition of a clove or a bay leaf or essential oils. A limited quantity of sardines is also put up in tomato sauce, and in special ways peculiar to certain manufacturers.

American sardines constitute an economical and concentrated form of food, rich in oil and in protein or nitrogenous constituents. One great advantage is that there is no waste in purchasing fish in this form, as the entire contents of the can is edible and nutritious. The head and scales are removed during the handling and packing and the small bones are so softened by the cooking process that they may be eaten without discomfort or danger. The average composition of Maine sardines is as follows:*

	Plain sardines in oil; per cent.	Fried sardines in oil; per cent.
Water-free substance ..	47.9	51.0
Oil	25.5	28.1
Protein	19.2	19.3
Salt	1.5	1.5
Total mineral matter....	3.8	4.0

Their food value as compared with certain other common nitrogenous foods is indicated in the table below:

	Refuse (bone, skin, etc.), per cent.	Water, per cent.	Protein N X 6.25 per cent.	Fat.	Mineral matter, per cent.	Total nutrients, per cent.	Fuel value per lb. calories.
Sardines, canned in oil...	0	52.1	19.2	25.5	3.8	48.5	1424
Mackerel, whole ..	34.6	44.5	13.7	6.2	1.0	20.9	515
Round beef, med. fat.	7.2	60.7	19.0	12.8	1.0	32.8	895
Mutton leg, med fat.	18.4	51.2	15.1	14.7	0.8	30.6	900
Cheese, American	0	31.6	28.8	35.9	3.4	68.1	2055
Eggs	11.2	65.5	11.9	9.3	0.9	22.1	635

Early in 1916, in order to effect an improvement in the demand for and general quality of the Maine sardines, a large majority of the Maine packers joined the National Canners' Association, forming a Sardine Section. They requested the Association to inaugurate a system of inspection of the factories, to look after the quality of fish packed and the sanitary conditions in the factories. All but three of the Maine packers signed the agreement, pledging themselves to live up to such requirements as the Association might lay down, and agreeing to an assessment of two cents on every case of cans purchased by them, in order to defray the expenses of the inspection. The appointment of the Director of Inspection and of the inspectors, as well as the formulating of rules and regulations, was left entirely in the hands of the officers of the National Canners' Association. About twenty inspectors are employed, each one being assigned to the inspection of one or more factories. Their principal duties are to see that only fish of good quality are received and packed at the factories, and that the sanitary requirements are lived up to. These requirements are about twenty in number, covering cleanliness of factory and equipment, and provisions for the comfort and welfare of the employes.

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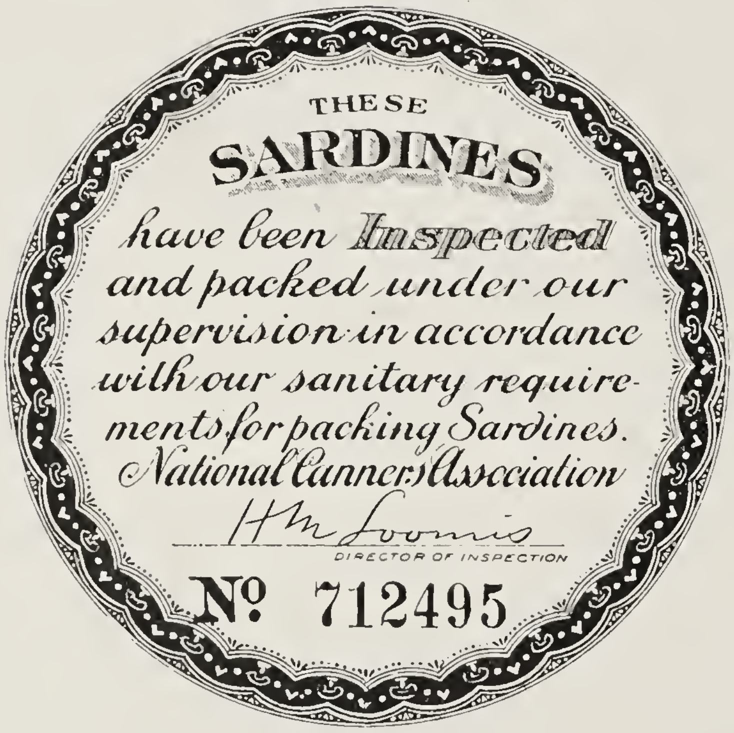
*From analyses by E. S. Middleton and H. M. Loomis.

When fish of proper quality are packed in accordance with the Association's requirements, the packer is entitled to receive a certificate of the Association, to be attached to each case of sardines packed. These certificates are issued to the packer only after inspection of each lot of goods, and a receipt for them is given to the inspector. A fac-simile of these certificates is shown below:



THESE

SARDINES

have been Inspected *and packed under our supervision in accordance with our sanitary requirements for packing Sardines.*

National Canners Association

H M Loomis

DIRECTOR OF INSPECTION

Nº 712495

As this form of voluntary inspection is something entirely new in the food industries, a number of serious problems are necessarily encountered in placing it beyond the experimental stage. In spite of some difficulties, it is now entering upon a second season, and an even greater measure of success is expected with the increased confidence and co-operation of the packers. At this point it might be of interest to call attention to a resolution adopted at the annual convention of the National Canners' Association held in Cleveland last February:

"We concur fully in the recommendation of the President that the Committee on Sanitation be instructed to add to their duties the consideration of the organization of a system of inspection for the entire canning industry on the lines of that already developed and installed by the Sardine Section."

In connection with this inspection work the packers authorized the equipment of a laboratory for chemical and bacteriological investigation of problems connected with the industry. This laboratory is now in working order and the Association is planning to begin some work this season which will be of general benefit and interest to all sardine packers.

Use of Standard Containers Does Not Obviate Necessity for Declaration of Quantity of Contents Required by Net Weight Amendment.

Numerous inquiries have come to the Bureau of Chemistry regarding the requirements of the Net Weight Amendment to the Food and Drugs Act as applied to food products in standard barrels and to small fruits in Climax baskets, and other standard containers, in view of the requirements of the Standard Barrel Act (March 4, 1915), and the Standard Container Act (August 31, 1916).

The Bureau is of the opinion that these laws in no wise conflict in their requirements, and that in case of food in package form, even though standard containers are used, it is necessary to mark the packages with the quantity of the contents. It will be noted that paragraph (e) Regulation 29, as amended by Food Inspection Decision 168, admits of the use of the term "one United States standard barrel" as a unit of dry measure for use upon standard barrels which are filled to capacity with food products.

This ruling is not intended to revoke the previous public announcement (Item 155, S. R. A. Chem. 16) to the effect that, pending a determination of the question whether the Net Weight Amendment applies to berries in small open containers, the Department will not recommend proceedings under the act solely upon the ground that the individual containers bear no statement of the quantity of the contents. As previously announced, however, the Department is of the opinion that crates containing berries, peaches and tomatoes in small open containers, constitute food in package form, and the law requires that the crates be marked with a statement of the quantity of the contents, which statement should include the number of small containers and the quantity of the contents of each.

The Tax on Coffee.

The House of Representatives has passed the bill placing a tax of 1 cent a pound on coffee and 2 cents on tea now held in this country, and an import tax of 10 per cent ad valorem on that to be imported. The exemption for the retailer is 200 pounds of coffee and 50 pounds of tea. The amendment taxing coffee substitutes was defeated. The act also provides that where contracts have been made for the sale of coffee without permitting the adding of the tax to the price, the tax shall be paid by the vendee. As originally drawn, the whole stock of the retailer was exempt, which would have given a great advantage to the chain stores, some of which hold larger stocks of tea and coffee than do most wholesalers.

Meat and Meat Food Products.

More than one hundred meat inspectors met recently in Cincinnati, under the supervision of Dr. Steddon, Chief Meat Inspector of the Bureau of Animal Industry of the Department of Agriculture, for the consideration of means for the conservation of meat and meat food products, especially fats. It is hoped as a result of the meeting that waste will be reduced in the preparation of meats for market.

U. S. Not Germany Now Drinks the Best Coffee.

Coffee is one food product that has not advanced in price because of the war. Coffee is as cheap here as it was in 1914, and of better quality. Before the war the best coffee went to Germany; now the United States is getting it.

Staff Correspondence

The hearings on the various food bills before the House and Senate Committees on Agriculture closed on May 18. In a general way the production and conservation of food supplies was the main subject of consideration, with a view to the enactment of legislation covering it. The hearings before the Senate Committee began on April 23 and those before the House Committee on May 1.

The first measure taken up by the House Committee was H. J. Res. 75, to provide further for the national security and defense by stimulating agriculture and facilitating the distribution of agricultural products. On this the following witnesses were heard: Hon. David F. Houston, Secretary of Agriculture; Dr. A. E. Taylor, of the faculty of the University of Pennsylvania in charge of food investigations, who spent some time in Germany last summer as an assistant to the State Department in the study of nutrition; Dr. R. A. Pearson, president of the Iowa State College of Agriculture and Mechanic Arts; B. H. Rawl, for the Bureau of Animal Industry, Department of Agriculture; Dr. H. L. Russell, of the Agricultural College of Wisconsin; Dr. W. O. Thompson, president of the Ohio State University; Dr. William A. Taylor, chief of the Bureau of Plant Industry; Dr. Charles J. Brand, chief of the Office of Markets and Rural Organization, Department of Agriculture; Representative C. C. Carlin, of Virginia; E. B. White, of the Virginia Council of Defense; Dr. A. C. True, director of State Relations Service, Department of Agriculture; Gifford Pinchot, formerly of the Forestry Service, Department of Agriculture; H. H. Schenk, of Memphis, Mo., of the American Federation of Organized Producers and Consumers, including the Farmers' Union, the American Society of Equity, the Equity Union, the National Farmers' Association, the Grange, etc.; Henry N. Pope, of Fort Worth, Tex., president of the Farmers' Educational Co-operative Union of Texas, etc.; Peter Radford, manager of the Warehouse and Market Department of Texas; Hon. Carl E. Milliken, Governor of Maine; J. S. Cullinan, of Houston, Texas, for the Texas Industrial Congress; Edwin C. Dinwiddie, for the Anti-Saloon League; John A. McSparran, of Furniss, Pa., for the National Grange; Dr. E. Dailey Smith, extension secretary of the Board of Temperance of the M. E. Church; and Kirby B. White, president of the American Seed Trade Association.

Following E. J. Res. 75 came the introduction of H. R. 4125, entitled "An Act to provide further for the national security and defense by encouraging agriculture and regulating the marketing and distribution of foods and other necessaries of life." The following witnesses were heard by the House Committee on this bill: Representative George C. Scott, of Iowa; Representative Adolph J. Sabath, of Illinois; Capt. J. F. Lucey, of the Belgian Relief Commission; Francis M. Phelps, attorney, representing the Millers' National Federation; Jacob Wels, vice-president of the Atlantic Export Co., of New York; Hon. Francis G. Caffey, solicitor for the Department of Agriculture; Prof. Vernon Kellogg, of Stanford University, Cal.; Hon. George W. Anderson, U. S. District Attorney of Massachusetts; Hon Adolph O. Eberhart, former governor of Minnesota, and Sherman T. Edwards, of Chicago, representing the American Poultry Association and the American Feed Manufacturers' Association.

About the time H. R. 4125 was introduced H. R. 4188 made its appearance, "to provide further for the national security and defense by stimulating agriculture and facilitating the distribution of agricultural products."

The latest to be introduced in the House was H. R. 4630, which it is understood is to supersede H. R. 4125.

HOOVER'S TESTIMONY.

The testimony of Hon. Herbert C. Hoover, the prospective Food Administrator, or "Dictator", as he is called in some quarters, before the Senate Committee on Agriculture, was as interesting as it was important, when it is considered that he is the man likely to be named by President Wilson to execute the extraordinary powers proposed to be vested in the President by the pending legislation. Mr. Hoover

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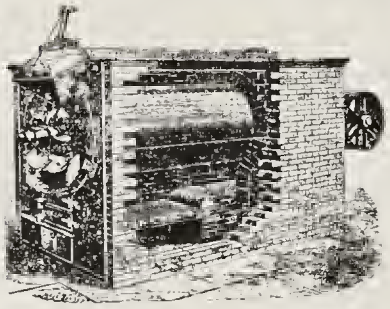

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testified that he had acquired very broad experience as Chairman of the Belgian Relief Commission and is in a position to advise intelligently as to the food situation in Europe and the probable requirements of the Allies. It has cost $350,000,000 externally and $250,000,000 internally to feed 10,000,000 people, under his administration in Belgium. He studied the food control measures in Germany as well as in England and France. The cereal supplies, especially of England, France and Italy, under prewar conditions originated in large measure in Russia, Roumania, Bulgaria, Australia, India and the Argentine. The North American sources were secondary to those. The whole of Russia, Bulgaria and Roumania are absolutely cut off. Australia and India are, in effect, cut off today, because the haul is three times the distance to the Atlantic seaboard, the tonnage required is trebled and the danger doubled. Whether that lane will be reöpened is a matter of doubt. In addition to 500,000,000 bushels of wheat, the Allies require over 250,000,000 to 350,000,000 bushels of other cereals. The oats requirement is very much larger. The problem of supplying anywhere from 800,000,000 bushels of grain to 1,000,000,000 bushels confronts the Allies and this country. The export resources of the United States averages roughly from 400,000,000 to 425,000,000 bushels of all kinds of grain. Speaking of the world food situation, Mr. Hoover testified:

> "We have got to take a strong grip on these subjects to protect our own people and to protect them. The question of food control always appeals to me as being one of those operations which strikes more closely and deeply into the very roots of life of the people than almost any other feature of war, except the actual fighting line itself; and here is a place where you penetrate in some direction practically every home in the country, and in the organization of all these measures, if we are not careful we set up a series of currents of disturbance in ordinary economic life and undermine the initiative of the people by the imposition of a large amount of machinery which in itself is a disaster to democracy, unless we can see to it that such an organization is absolutely of an emergency character and disappears instantly with peace."

Other witnesses before the Senate Committee were: Secretary of Agriculture Houston, John A. McSparran, Dr. H. E. Stockbridge, president of the Farmers' National Congress, of Atlanta, Ga.; G. H. Slocum, for the Gleaner organization, Detroit, Mich.; Prof. Raymond A. Pearson, Prof. L. D. H. Weld, of Yale; Dr. Charles J. Brand, Dr. Clyde Lynden King, University of Pennsylvania; J. S. Cullinan, Prof. G. G. Hunter, of the University of Pennsylvania; Hon. George W. Perkins, of New York; C. L. Harlan, of Atlantic, Ia.; Mark Mennel, Harter Milling Co., Toledo, O.; Bernard J. Rothwell, Bay State Milling Co., Lawrenceburg, Ind.; John J. Dillon, Department of Food and Markets, State of New York; Hon. Lynn J. Frazier, Governor of North Dakota; U. S. Senator Thos. J. Walsh, of Montana; H. Dittmer, Oklahoma Millers' Association and Canadian Mill & Elevator Co., El Reno, Okla.; L. E. Moses, Southwestern Millers' League and Kansas Flour Mills Co., Kansas City, Mo.; W. L. Wagner, representing the Joint Council of the Western Fruit Jobbers' Association, the International Apple Shippers' Association and the National League of Commission Merchants for the United States, Chicago; Robert G. Phillips, International Apple Shippers' Association, Rochester, N. Y.; Edgar W. J. Hearty, Boston; R. D. Clayberger, National League of Commission Merchants, Philadelphia, Pa.; Hon. H. W. Sumners, Representative of Texas; Dr. Wilbur F. Crafts, International Reform Bureau, Washington, D. C.; Hon. Carl E. Milliken, Governor of Maine; Hon. Gifford Pinchot, Milford, Pa.; Rev. Charles Stelzle, New York, Federal Council of Churches; W. W. Wheeler, attorney for the Anti-Saloon League; Miss Margaret Dye Ellis, the Woman's Christian Temperance Union; Hon. John E. Milholland, of Lewis, N. Y.; Prof. J. A. Works, Cornell Agricultural College; Prof. Spencer Miller, Columbia University; Prof. Charles Beard, Columbia University; Hon. Dante Barton, Committee on Industrial Relations; Miss Helen

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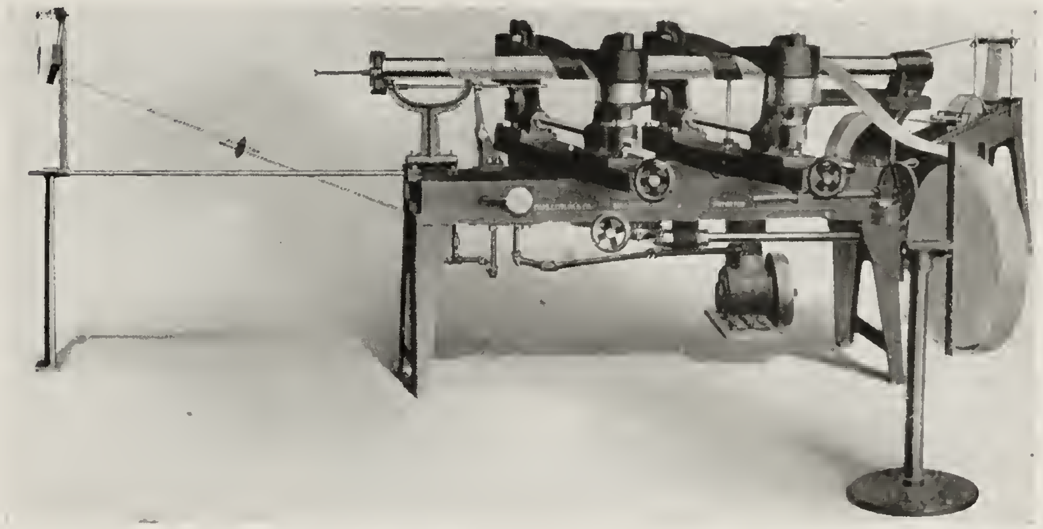

Marot, Bureau of Education Experiments, New York; Dr. H. L. Russell, Agricultural College of Wisconsin; Robert Crain, General Counsel, U. S. Brewers' Association; Gustav Pabst, president U. S. Brewers' Association; Julius Liebmann, brewer, Brooklyn, N. Y.; Robert M. French, French Pancoast Laboratories, New York; E. W. Elmore, Elmore Milling Co., Philadelphia, Pa.; J. E. White, for the Walker-Gordon Laboratories, Plainsboro, N. J.; John T. Smith, Kansas City, Mo., Labor Council.

Senator Reed, of Missouri, openly attacked the House food control bill on the floor of the Senate on the 25th inst. "Whenever the time comes," he said, "that we substitute for the law the will of a single man, we substitute despotism for democracy."

Senator Sherman, of Illinois, declared: "Regulation by law and not by lodging arbitrary powers in men is the proper way to handle this important question."

While this discussion was proceeding in the Senate, the House considered in Committee of the Whole H. R. 4188. Chairman Lever, of the House Committee on Agriculture, on the suggestion of Representative Mann, of Illinois, agreed to strike out section 2, giving the Secretary of Agriculture authority to take such measures, to use such means or additional agencies of the Department of Agriculture as he finds necessary to stimulate the production, to promote the conservation and utilization and to facilitate the distribution of foods and feeds. This provision was left for consideration in connection with H. R. 4630.

At this writing it is evident that it is the purpose of the National Administration to focus the attention of Congress on food control and revenue legislation until such legislation is enacted. There are those who say that both the revenue bill and the food control and conservation measures are likely to provoke so much discussion that Congress will not adjourn this summer. In fact, it is understood that President Wilson has arranged to remain in Washington this summer in anticipation of a long session.

WAR REVENUE BILL—TAX ON TEA AND COFFEE.

H. R. 4280, the revenue bill designed to raise two billion, two hundred and twenty-five million dollars for war purposes, passed the House on May 23. Sec. 1001 provides that upon all coffee or tea which on the day the Act is passed is held by a retailer who does not sell coffee or tea at wholesale in a quantity in excess of fifty pounds in the case of tea and two hundred pounds in the case of coffee, or by any other person, corporation, partnership, or association in any quantity, and which is intended for sale, there shall be levied a tax of 1 cent per pound in the case of coffee and of 2 cents per pound in the case of tea.

THE TARIFF ISSUE.

As Title 10 of the revenue bill provides for war customs duties, there is no question that the tariff will be raised as a political issue in the Senate when the bill is reported by the Finance Committee and it is probable that a protracted debate will follow on this issue alone, among many others. Sec. 1000 of the bill levies a duty of 10 per cent ad valorem in addition to the existing duty, whether ad valorem or specific, and if not now dutiable, a duty of 10 per cent ad valorem, on all articles when imported from any foreign country into the United States, with certain exceptions.

WAR TAX ON "SOFT DRINKS."

The revenue bill as passed by the House taxes "soft drinks" coming and going, so to speak. A tax of 10 per cent of the manufacturer's selling price is imposed upon all prepared sirups or extracts intended for use in the manufacture or production of beverages commonly known as "soft drinks," by soda fountains, bottling establishments and similar places, and a tax of 2 cents per gallon upon unfermented grape juice, soft drinks or artificial mineral waters (not carbonated), and fermented liquors containing less than one-half of one per cent of alcohol, sold by the manufacturer, producer or importer thereof in bottles or other closed containers, and upon all ginger ale, root beer, sarsaparilla,

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And—with the constant thought—that they are to meet the exacting taste of particular people.

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Staff Correspondence

pop, and other carbonated waters or beverages manufactured and sold by the manufacturer, producer, or importer of the carbonic acid gas in carbonating the same. A tax of 8 cents per pound is imposed upon all carbonic acid gas in drums or other containers intended for use in the manufacture or production of carbonated water or other drinks.

CAFFEY'S NOMINATION FAVORABLY REPORTED.

The nomination of Hon. Francis G. Caffey to be United States District Attorney for New York has been favorably reported by the Senate Committee and is expected to be confirmed in the near future, when Mr. Caffey will resign as Solicitor for the U. S. Department of Agriculture, as anticipated in the Journal.

CORNMEAL INVESTIGATION.

The Department of Justice is investigating the 60 per cent increase in the cost of cornmeal, which began immediately after the Department of Agriculture recommended the use of corn as a substitute for wheat flour.

Arkansas.

John H. Page, Commissioner of Mines, Manufactures and Agriculture, has announced that in the future the eight seed and fertilizer inspectors in his department will also operate as food and drug inspectors. In addition the State Board of Health will work for the enforcement of the state food laws. The matters that will be looked into by the eight inspectors are short weight in retail establishments and the sale and shipment of unwholesome or misbranded foods and drugs. The department will co-operate more fully with the federal authorities to supervise interstate shipments in violation of federal laws.

Idaho.

Food Commissioner J. K. White has instituted a campaign to compel the bakers of the state to conform to the law regulating the sale of bread in one pound and half pound loaves only. The law provides that a loaf of bread shall weigh not less than 16 ounces or a half loaf not less than 8 ounces 24 hours after baking. Purchasers may insist on having their bread weighed in their presence and if a shortage exists additional bread must be given to make up the deficit. Exceptions are provided in the case of rolls and fancy bread weighing less than a quarter of a pound, and also for rye and maize bread. The law, according to Commissioner White, has been generally disregarded, and he intends to take as drastic action as necessary to compel compliance with it.

Illinois.

The Bulletin of the Chicago School of Sanitary Instruction for May 12th contains a short account of the penny school lunches. These lunches are given in twenty-six schools, and the committee in charge of them has been able to operate with practically no deficit.

According to the report there are five groups of children found in the Chicago public schools for which it seems there ie a necessity for supplying a lunch in the school building. These include children who, owing to parental neglect, have not had a sufficient breakfast, and to such children a luncheon is necessary before the midday meal; children whose homes are not open at midday for an adequate meal on account of parents working out; children living at a considerable distance from the school; children whose depleted or anæmic physical conditions demand increased nourishment; children, who, through poverty or neglect, are not furnished with the pittance asked for the food served.

The menus are varied weekly and consist of hot lunches, either a vegetable soup, or cocoa, which is served with milk, sugar and two slices of bread, sometimes with a spread of jam or jelly. This ration is given for a penny at a loss. The loss is made up on the soup menus. For children who

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Machines for Manufacturing Chocolate and Cocoa and other alimentary products.

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Bruxelles, 1910 - - " "
Turin, 1911 - - - - Grand Prix

33 Gold and Silver Medals
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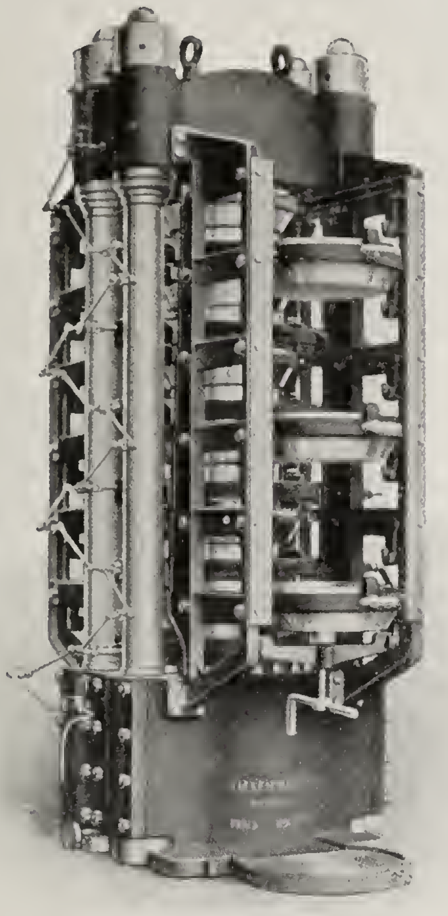
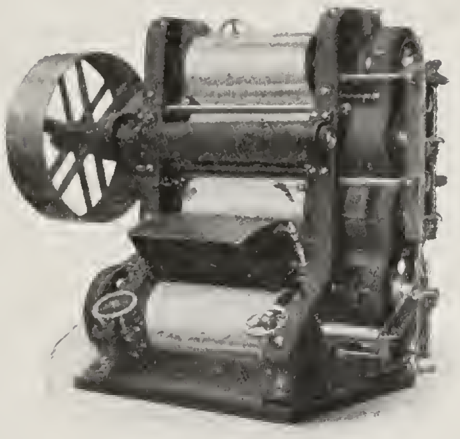

Cocoa Press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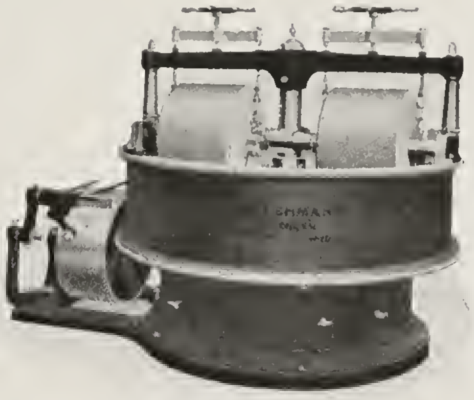
Melangeur

have little or no breakfast at home, luncheon is served at the morning recess, consisting of sandwiches with a generous slice of Vienna sausage or potted ham. These, as stated, are sold for a penny without loss. The service is on the cafeteria order; the children file by, deposit their pennies and each is handed a sandwich.

The formation of Calf Clubs is being actively encouraged by W. Scott Matthews, State Food Commissioner. The department has arranged with the banks throughout the state to lend boys and girls the money to buy calves. The calves are two to six weeks old and sell for $14 to $20. The notes run for a year with 6 per cent interest. At the end of the year the calves will be sold at auction and the profit will go to the boys and girls raising them. In addition 3,000 to 4,000 prizes, aggregating in value $10,000, will be distributed for the best showing made in raising the calves. To the price of each calf $1 is added to create an insurance fund to take care of the notes secured by calves that die during the year. It is the opinion of the Food Department that the scarcity and high cost of beef, milk, and leather is due to the slaughter of veal calves.

Indiana.

Dr. H. E. Barnard, state food and drug commissioner, has issued an order that bakeries shall refuse to accept returns of stale bread. The order means that in the future retailers will have to dispose of the bread that they order. Previously the amount of stale bread taken back by the bakers amounted to about 5 per cent of their total output, and was sold to farmers as chicken feed, horse feed, and for similar purposes. Dr. Barnard said:

"What bread is sold after it is returned is sold at less than one-half its value and the baker must stand the loss. The result is the baker must make up for this by decreasing the size of the loaf of fresh bread purchased by the consumer. And the consumer pays the bill. It is a direct economic loss that must be stopped now in the effort to conserve our food supply.

"A stale loaf does not mean a mouldy, sour and dry loaf. It does not mean an unwholesome, unpalatable food. It means a loaf which has been in the bread case in the grocery more than twenty-four hours. The loaf is just as good when it goes back to the baker as when it goes out from the baker. If it had been baked in the kitchen oven and kept in the bread box it would be used up, crumbs and crust."

Iowa.

The farm-to-consumer movement which has been inaugurated in Des Moines by Food Commissioner N. C. Edenburn and Mayor Tom Fairweather was put in operation recently with a large number of farmers registered, who are willing to deal directly with the consumer in the city. Most of these farmers reside in Polk and the adjoining counties.

The 37th General Assembly enacted laws amending the Dairy Law, and Weight & Measure Law. None of the other laws enforced by this department was changed in any particular. Below will be found the changes made in the Dairy, and Weight & Measure Laws. These changes become effective July 4th, 1917.

On July 4th a law to prevent the sale of adulterated or misbranded insecticides, and fungicides, within the state becomes effective. This law provides for the enforcement of its provisions by the Dairy & Food Commissioner. The act is being printed in pamphlet form and a copy may be had, by anyone, interested, on application to this office.

CHANGES IN THE DAIRY LAW.

The period for which license to operate the Babcock Test is issued was changed to one year from date of issue instead of for the period ending May 31st each year (Line 1, paragraph 3 of Sec. 2515-f).

The maximum period for which a substitute tester may be appointed was changed to 14 days instead of 6 days (Line 4, paragraph 4 of Sec. 2515-f).

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is bread you can eat with a sense of safety because it is pure, clean and the standard of quality wherever sold.

It is pure, because only the highest grade bread making materials which money can buy are used in making it and the process under which it is made is the most advanced and scientific known to the baking industry.

WARD'S TIP-TOP BREAD is Clean because it is made in bakeries which are models of bread-making cleanliness. Every loaf is wrapped in waxed paper by MACHINE.

Hence, when you buy it you are guaranteed these three food manufacturing virtues—Quality, Purity and Cleanliness.

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THERE IS
CLEANLINESS, HEALTH
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Our PET
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The Standard of the World

Wins and Holds Trade on
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ORIGINATORS OF EVAPORATED MILK

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The minimum content of total solids in milk was changed to 11.5% instead of 12% (Line 8 Sec. 2515-d).

The minimum fine for violation of the Dairy Law was changed to $10.00 instead of $25.00 (Line 3 of Sec. 2515-g).

The salary limit of four Assistant Commissioners was increased from $1400.00 to $1600.00.

No other change was made in the Dairy Law.

CHANGES IN THE WEIGHT AND MEASURE LAW.

The Weight and eMasure Law was changed by striking out all of Section 3009-i after the word "measure" in line 7 and inserting in its place the following:

"All sales of grapes, other fruits and vegetables in Climax baskets shall be made in such baskets conforming to the United States Standards therefore and all Climax baskets for grapes and other fruits and vegetables sold, used or offered for sale within the State shall be of the size and capacity fixed by the United States standards for Climax baskets for grapes and other fruits and vegetables, and until changed by the Congress of the United States the standards for Climax baskets for grapes and other fruits and vegetables shall be the two-quart basket, four-quart basket, and twelve quart basket, respectively:

1. The standard two-quart Climax basket shall be of the following dimensions: Length of bottom piece, nine and one-half inches; width of bottom piece, three and one-half inches, thickness of bottom piece, three eighths of an inch, height of basket, three and seven-eighths inches, outside measurement; top of basket, length eleven inches and width five inches, outside measurement. Basket to have a cover 5x11 inches when a cover is used.

2. The standard four-quart Climax basket shall be of the following dimensions: Length of bottom piece, twelve inches; width of bottom piece, four and one-half inches; thickness of bottom piece, three eighths of an inch; height of basket, four and eleven-sixteenths inches, outside measurement; top of basket, length fourteen inches, width six and one-fourth inches, when cover is used.

3. The standard twelve-quart Climax basket shall be of the following dimensions: Length of bottom piece, sixteen inches; width of bottom piece, six and one-half inches; thickness of bottom piece, seven-sixteenths of an inch; height of basket, seven and one-sixteenth inches, outside measurement; top of basket, length nineteen inches, width nine inches, outside measurement. Basket to have cover nine inches by nineteen inches, when cover is used. Any berry boxes, Climax baskets of measure not conforming to this section shall be confiscated by the inspector.

Provided, however, the provisions of this Act relating to the standards for Climax baskets for grapes and other fruits and vegetables shall not become effective until the first day of November, 1917.

And further provided that nothing in this act shall be construed to exempt commodities in the baskets and containers specified in this act from the provisions as to net weight contained in the fifth sub-division of section four thousand nine hundred ninety-nine-a-thirty-one-c (4999-a-31-c). Supplement to the Code, 1913."

A law fixing the number of pounds in a barrel and sack of flour becomes effective January 1, 1918. This law is not enforced by this department but the numerous inquiries directed to this office concerning it justify publication of it in this bulletin.

The law is as follows:

> "That from and after the first day of January, 1918, one hundred and ninety-six (196) pounds avoirdupois shall be considered a barrel of flour, and one-fourth barrel, consisting of forty-nine (49) pounds, shall be considered one sack of flour."

The effect which this law may have upon the provision of the food law relative to food in package form and the declaration of the net weight thereon may be seen from the following opinion from the office of the Attorney General.

"April 24, 1917.

Hon. W. B. Barney,

Dear Sir: We have your request for a construction

Never Questioned

Royal Baking Powder is made from pure cream of tartar, which is derived from grapes. It perfectly leavens the food, making it appetizing, delicious and healthful, and its superiority in all the qualities that make the perfect baking powder is never questioned.

Absolutely Pure

No Alum—No Phosphate

of House File No. 233 by Findlay fixing the number of pounds in a barrel and sack of flour. * * * 'Section 1. From and after the first day of January, 1918, one hundred ninety-six (196) pounds avoirdupois shall be considered a barrel of flour and one-fourth barrel, consisting of forty-nine (49) pounds, shall be considered one sack of flour.'

The evident purpose and intent of the act is to fix and determine the number of pounds that shall be considered a 'barrel of flour' and a 'sack of flour' and after January 1st, 1918, such weights will be the legal weights of flour in the containers mentioned, but, said act in no manner modifies or affects any of the provisions of sections 4999-a-18 to 4999-a-31-f of the pure food laws or any rules and regulations adopted thereunder by the commissioner, all of which remain in force the same as though said act had not been passed.

Very respectfully,
(Signed) J. W. Sandusky,
Asst. Attorney General."

This department is of the opinion that flour can be sold in 98 lb., 24 lb., 10 lb., 5 lb. and other weight packages so long as they are not styled "a sack."

Kansas.

L. D. Bushnell, bacteriologist, and C. A. A. Utt, Associate Food Analyst of the Kansas State Agricultural College, have completed an examination of canned salmon for bacteria and tin. They analyzed carefully 52 samples of 44 different brands. They found that canned salmon, as found on the market, is practically sterile. It does not contain organisms of the B paratyphoid type, not aerobic or anaerobic spore formers. The tin determinations were well within the tolerance of 300 milligrams in a kilogram.

New York.

New York, May 29.—(Special).—While the "wind jammers" and orators in Congress have been working overtime, counting glory, competing for oratorical honors and playing politics, the food traders of these parts—accused of opposing "control" by Uncle Sam and bent on such playful pastimes as "conspiring, speculating, hoarding and boosting prices"—have been hard at work trying to find ways to save the anticipated big crops, to cut down unnecessary expenses and find new and better ways to get goods from producer to consumer. It is no half-hearted effort but a surprising outpouring of honest patriotism from hard-headed business men who realize that national problems are just now more compelling than selfish money-making.

The New York City jobbers started on a campaign of cutting corners on expense of doing business and a war board was chosen to study methods. This committee sat every day for ten days and probed every item of expense entering into the grocery trade. The result was a surprising proof that present methods are highly efficient, but a strong appeal to grocers to adopt a close-handed attitude which will probably produce many small gains in the elimination of expenses and which every house in this region pledged itself to practice.

Then President Whitmarsh of the National Wholesalers was made chairman of a committee on Liberty Loan bonds, by the New York Bankers' Commission, his special field being all kinds of wholesale dealers. He rounded up the food trades and persuaded the houses to help their employes finance subscriptions by lending them credit "pull" with banks and planning installment payments; also to push the idea among retailers and in turn with consumers generally. Virtually every line of food trade has pledged co-operation, and Austin Nichols & Co. led off with an offer to their help to carry the loans subscribed for by their employes on a basis of $1 a week per bond for 50 weeks, without charge for interest.

UNCLE SAM'S GROCERY BILL.

Meanwhile jobbers are not only standing whole-heartedly by the Administration at Washington in its efforts to conserve food and to sustain the Hoover plans, which are heartily endorsed so far as disclosed—and Hoover has made a big hit with the grocery trade by his evidence of safety and sanity—but they are taking chances by freely handing out groceries to Uncle Sam at a blind price. Never before has anything of this sort happened in the archives of the trade.

It came about through the Government's superannuated methods of buying; waiting till the field was already badly alarmed as to the sufficiency of the scanty stocks to hold out through the season till new goods arrive and then ordering army and navy requisitions in impossible quantities. The result was a general scare and very scanty bids at very high prices. In the aggregate few of the bids came within 30 per cent or more of filling the orders, and at that the trade felt that it was making sacrifices in withdrawing such lots from the needs of civilian trade.

But Uncle Sam promptly laughed at the high prices and on the Navy contract (which came first) put into operation the new law of March 4, which amounted almost to confiscation. The bidders all received orders to supply what they had proposed and the price was left as per the following order:

> In accordance with the authority conferred on the President by the Act of Congress, March 4, 1917, I am directed to place with you the attached order. You will deliver the goods specified therein as directed and the price to be paid therefor will be determined by the President in due course.
>
> Any representations you desire to make as to the price you claim for these goods should be submitted to this office with your bill on delivery. The attached order is based on proposals submitted by you to this office on April 19. Please acknowledge the receipt and acceptance of this order under the conditions of the same.
>
> C. T. WILLIAMS,
> Paymaster, U. S. Navy.

The trade gasped, but in the end furnished the goods and will take a chance at getting a new dollar for an old one; this with very grave uncertainty as to when they will get the money, thanks to Government red tape. Nor was that all, for many of the bidders have since repeated the operation with a subsequent Army bid.

CURIOUS EFFECT OF COFFEE TAX.

A curious effect of the coffee tax law is that it will probably compel grocers to do something they have long wanted to do, but couldn't because the law wouldn't allow it—compel uniform systems of bookkeeping, especially by retail grocers. If Uncle Sam is to accept taxes on "excess profits" on the business of the retailers or jobbers he will probably want to know just how the "profits" are arrived at by bookkeepers. Uniform accounting as a basis for fair competition has long been favored by leaders of trade associations.

"SPOT AND FUTURE" BAKED BEANS.

The work of the canners, jobbers and can makers to help the present situation has been principally to have secondary products suspended for a couple of months in order that perishable products might have the right of way in the limited can supply. To that end, the canning of such things as soups, baked beans, spaghetti, etc., will be suspended till fall by most packers and a curious result has appeared in trade channels.

Heretofore such products have been staple the year around, with no seasonable considerations. But this year the suspension for two months has created "spots" and "futures" in the stocks handled, with a tremendous boom in the price of "spots" as against futures to be canned in the fall. But the trade has displayed a striking degree of patience in the matter.

RADICAL VIEWS ON UNFAIR TRADE.

The local food trades are greatly agitated at the manifest determination of the Federal Trade Commission to blaze new trails through the commercial forest by forcing radical interpretations of the laws of unfair trading.

When the commission picked up the cudgel of Andrew Ross and proceeded to drag the Shredded Wheat Co. over the coals for having sued him for imitating Shredded Wheat—which has since been decided in the Federal district court in Connecticut in favor of Shredded Wheat, on substantially the same facts—the trade thought it was going pretty far afield to discover "unfairness" in trade, but in its action against the Fleischmann Co. of Cincinnati it has thrown a scare into hundreds of houses in the food trades.

The accusation against the company is that the Fleischmann Co. is guilty of "unfair trade practices" because it "contributed gifts such as liquor, cigars, silverware, money, theatre tickets, automobile rides and even contributed largely to the expenses of the annual conventions of the master bakers' association."

If this be illegal, hundreds of concerns in the food trades as well as elsewhere are liable to prosecution. It may look rather serious when framed in the technical language of a complaint, but it will probably turn out to be nothing more nor less than what most business men do who fraternize with their customers at conventions and elsewhere. Hundreds of companies have official "mixers" among their executives and in the course of ordinary sociability invite customers to "eat, drink and be merry." Since when did it become unfair practice? Theatre parties are common under such circumstances; so are automobile rides, while contributing to an association for raising an entertainment or convention fund is as common as a wide variety of other contributory practices in business and elsewhere. It may be that some concerns would welcome a breaking up of the practice, but not at the expense of having such incidents of courtesy and co-operation branded as immoral.

The Great Atlantic and Pacific Tea Co., which is the largest grocery chain concern in the world, operating over 3,100 stores, distributed throughout twenty-nine states, is trying to sell $2,000,000 of its convertible gold notes. These are five-year notes, bearing 6 per cent interest. In its literature offering these notes for sale, this gigantic chain store concern submits some exceedingly interesting figures. Few people have given it credit for such a long existence. It appears it started in business in 1858 and has been operating under the present name for the past forty-eight years. In 1914 the business of the concern was $31,299,124; in 1915 it was $44,441,199, an increase of 41 per cent. In 1916 it was $76,430,565, an increase of 72 per cent over 1915, and an increase of considerable over 100 per cent since 1914. The company claims to have earned $2,661,973.29 in its last year and expects to earn $3,500,000 this year. The proceeds of the $2,000,000 notes are to be used for opening other stores, although the general belief in trade circles appears to be that the business is already dangerously unwieldly.

The investigations of hotel and restaurant kitchens which were conducted last year by the New York City Health Department's Bureau of Food and Drugs, repeatedly showed that expensive structural alterations insisted on by the department, could have been avoided if the architect had been familiar with the Health Department's regulations. In order to obviate this kind of difficulties, the department has addressed a letter to all the architects of the city, enclosing a copy of the Rules and Regulations relating to hotels, and a copy of the score card used by the inspectors.

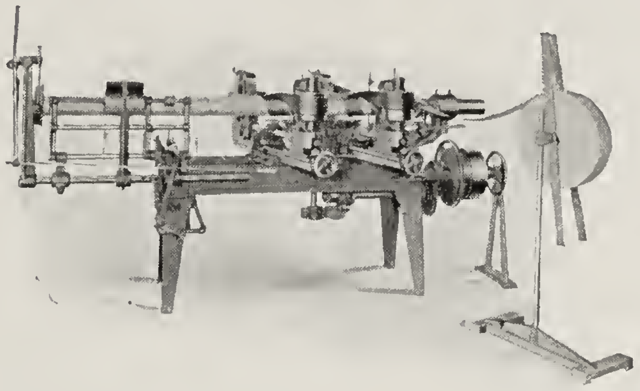
The legislature has passed an act, introduced by Senator Wicks, whereby the sale of skimmed milk, formerly illegal, is now permitted. Such a law has been advocated by the Health Department of New York City for the last ten years.

The Rural New Yorker, a farm publication of which John J. Dillon, State Commissioner of Foods and Markets, is the owner, contains a statement that "the present information is that the Borden company has bought up the R. F. Stevens company of Brooklyn, the Central Dairy Company, and the Uhlmann & Hauk company of New York.

"The price is said to aggregate between eight and nine million," the weekly continues. "It is also reported that negotiations are practically completed for the purchase of two other concerns, one of which is the largest remaining milk company of Brooklyn.

"It is freely predicted now that all of the smaller companies ultimately will fall into the Bordens' hands, and that

"LANGSTON" MACHINERY



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ROUND PAPER CANS

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CANADIAN FAIRBANKS-MORSE CO., Agents for Canada

See Article on Page 326 of This Number

Rumford
THE WHOLESOME
BAKING POWDER

Worthy of the highest commendation as a healthful, efficient and economical leavening agent.

The acid ingredient in Rumford is the genuine Prof, Horsford's phosphate in its improved form. It restores phosphatic elements equivalent to those which fine wheat flour loses in the milling.

A Perfect Baking Powder.

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CONTAINERS

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Foods, Drugs, Oils

Infinite Variety
Large Capacities
Prompt Deliveries

American Can Company
Chicago New York San Francisco
WITH OFFICES IN ALL LARGE CITIES

ultimately the whole distribution business then will be controlled by Borden's and Sheffield's farms."

Chapter 197, Laws of 1917 (Sen. Int. No. 903, Print No. 1048), amends Section 49 of the Agricultural law to read as follows: "*Cheese known as cheddar cheese, cheddar style cheese, twin cheese, flats, daisies, daisy twins and young americas containing more than thirty-nine per centum of moisture shall be deemed to be adulterated, and when sold, offered or exposed for sale shall be branded or marked conspicuously with the words 'adulterated cheese.'* Such branding shall be upon the sides of both the cheese and the container. The branding herein provided shall be in block letters at least one-half an inch square."

Nebraska.

State Food Inspector E. C. Kemble has seized the balance of a large shipment of navy beans, which were consigned to the Union Packing Co. at Omaha. "We are glad to get these beans right now," said the inspector. "We want to use them as an exhibit at the Conservation congress. People have an idea that these beans spoiled as a result of defective storage. Such is not the case. They became infected in the field while under cultivation. We can use them as a horrible example to the bean producers of Nebraska."

North Dakota.

The Agricultural Experiment Station has analyzed a number of samples of "Household Ammonia" to determine the amount of ammonia as NH_3, compared with the U. S. P. standard (not less than 9.5% nor more than 10.5%). The percentage of ammonia was found to vary from 3.02% to 11.90%. Most of the samples were under 5% and no one of them fell within the limits of the U. S. P. standard.

Ohio.

The Toledo, Ohio, health authorities, in advising consumers to return milk bottles clean, say: "Milk bottles are for milk. Do not use them for turpentine, coal oil, molasses, vinegar or anything but milk. The smell and taste of such materials stay in the bottles long after they are sterilized."

The State Department of Agriculture is urging beekeepers to exert every effort to raise a large crop of honey in Ohio this year, in anticipation of a possible sugar shortage. The inspectors of the department will lend every assistance to promote the work and will curtail the regular inspection work to give lectures, demonstrations and so on. The Federal Bureau of Crop Estimates will continue to issue reliable information as to markets for honey and the Bureau of Markets will do everything in its power to assist in the proper distribution of the honey crop.

Oregon.

The fruit growers of the Hood River valley are using all their resources to have the Government put fruit, especially apples, on the list of foods, instead of luxuries. Food is to have the preference in movement over the railroads, and those engaged in its production will be exempt from conscription. If apples are classified as a luxury it is anticipated that the orchard owners and packers will have all kinds of trouble getting this year's crop on the market. An effort is also being made to have apples included in the ration for the army.

Pennsylvania.

A bill to make the operation of a retail grocery dependent upon obtaining a permit from the State Dairy and Food Commissioner has been introduced into the Pennsylvania legislature. The text of the most interesting sections are as follows:

Sec. 2. On and after the first day of January, 1918, it shall be unlawful for any person to engage in the business of operating a retail grocery store unless he has first applied for and secured a permit so to do from the Dairy and Food Commissioner.

Sec. 3. Before the first day of January, 1918, and before the first day of each succeeding year every person operating a retail grocery store shall make application to the Dairy

Staff Correspondence

and Food Commissioner for a permit so to do in such form as is prescribed by the Dairy and Food Commissioner. Such application, in addition to other matters, required to be stated therein by the Dairy and Food Commissioner shall contain the name and address of the applicant, a brief summary of his qualifications to carry on such business, an accurate description of the place or places, vehicle or cart where or in which the business is carried on and the name and style under which it is conducted.

Sec. 4. If the application is satisfactory to the Dairy and Food Commissioner he shall issue to the applicant a permit authorizing him to conduct a retail grocery store or stores. For such permit the applicant shall first pay a fee of $1 for each and every store he conducts. All such fees shall be immediately paid by the Dairy and Food Commissioner into the State Treasury.

The money paid into the treasury under the provisions of this act shall constitute a special fund for the use of the Department of Agriculture in enforcing this law and may be drawn out upon warrants signed by the Secretary of Agriculture and approved by the Auditor-General.

Harrisburg, Pa., May 20.—Very little legislation to materially change the laws governing manufacture and sale of food will be made by the present general assembly. Prospects are that the session will be closed within the next six weeks as far as passing legislation is concerned and that the situation will remain as it has been in regard to State supervision. Numerous bills have been presented, but have not made much headway.

Efforts to secure changes in the cold storage law other than some administrative features have been doomed from the start because of the general food situation and it is very improbable that the legislature will reduce the fees for sale of oleomargarine, although an effort is to be made in that line. The oleomargarine license has been a big revenue producer and the farmer interests are standing behind the present law.

Propositions for a standard loaf of bread have been hard fought because of the uncertainty and even a plan to secure a law whereby weight of a loaf of bread would be stamped on the bottom has not been successfully handled in the Senate by its sponsors. The baking interests of the state at a series of hearings pointed out how fluctuations in price would prevent fixing of a standard that would be satisfactory to the public and the weight stamp failed to get the support promised for it.

Governor Brumbaugh has signed a bill which prohibits under a stiff penalty the use of unauthorized containers for the sale or delivery of milk. This law was enacted in response to a very general demand because of the wholesale stealing of bottles. Bills relative to tests for milk are pending in the Senate, backed by influential dairy interests.

Use of methods for bleaching flour which are recognized in the trade would be legalized if a bill now pending in the lower branch of the legislature goes through. It is being opposed as opening the door and will hardly be signed by the governor if enacted. The same fate will be meted out to other bills for radical changes to existing laws. The bill to prohibit the use of benzonate of soda entirely has not progressed very far.

The biennial bill to transfer the dairy and food bureau from the State Department of Agriculture to the Department of Health has made its appearance. This proposition was suggested by a commission which made a study of the State government in the interests of economy and like the plan to place dairy inspection in the health department instead of under the agricultural end of the government generally winds up on the indefinitely postponed calendar. No serious reasons for making the change have been advanced and Food Commissioner James Foust is assumed to be backed by the State Administration so that the bill may be vetoed if it does go through.

The State Bureau of Standards, which has required the establishment of sealers of weights and measures in practi-

To-Morrow
Notice how quickly the COTTOLENE creams with the biscuit flour.

To-Morrow
Notice that one-third less shortening is plenty when you use COTTOLENE.

To-Morrow
Notice how nicely the biscuits brown.

To-Morrow
Notice the crispness of the crust.

To-Morrow
Notice the lightness of the COTTOLENE biscuits when you break them open.

To-Morrow
Compare the flavor of your COTTOLENE biscuit with the flavor of butter biscuit.

To-Morrow
Compare the price of COTTOLENE with the price of Butter.

To-Morrow
Remember that COTTOLENE is also good for all kinds of frying, shortening and cake-making.

GOOD-BYE FLY

According to Department of Agriculture Bulletin No. 118: Apply 0.62 pounds Borax to every 10 cubic feet of manure. Apply Borax particularly around edges; sprinkle with 2 or 3 gallons of water. This treatment should be repeated with each addition of fresh manure. Flies lay their eggs in fresh manure. Borax prevents their hatching.

PACIFIC COAST BORAX COMPANY
NEW YORK CHICAGO OAKLAND

Second Hand Whiskey Barrels for Sale in Any Quantity

Also Wine Barrels and Half Barrels

Car Lot Shipments on Short Notice

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2701 Bismarck St. St. Louis, Mo.

WM. J. MOXLEY'S

"SPECIAL"

OLEOMARGARINE

The Taste Is the Test

Where Quality and Economy Meet

Gives better satisfaction than 75 per cent of butter used. Cost one=third less. Try it and be convinced. Order a package from your dealer.

Churned by

WM. J. MOXLEY, Inc., Chicago

cally every county and city in the state, is now facing a suit to determine whether it can require a rural county to establish such an officer. Several acts are pending providing for cities and counties to have the same officer in order to keep down expense and also to enlarge the authority of the sealers by requiring them to inspect and pass upon devices used for weighing coal, steel and the like where men are paid on a tonnage basis.

In a few days a bill to provide for the grading and packing of apples will be acted upon by the governor. This bill is designed to place the State's rapidly developing apple growing industry on a firmer basis in national trade. The provision requiring statements as to size, brand and other data is rigid and was opposed by some of the members from rural counties where apple growing is not extensive. It is expected that the yield of apples this year in Pennsylvania will be heavy as the trees have not been materially damaged by late frosts and some large orchards in the South Mountain region will begin bearing. The same is true of the peach situation and the number of new orchards due to bear is even greater than in the case of apples.

A senate bill in hand would permit the use of water in vinegar. Under the decisions on the present law the use of any water is forbidden unless a statement to that effect is made. This has caused great dissatisfaction among producers and in the retail trade as housekeepers do not readily understood that under present conditions they are the only persons who can use water to make it suitable for domestic use.

Secretary of Agriculture Patton estimates that the State of Pennsylvania has under cultivation now the largest acreage ever known because of the great number of persons who have undertaken gardening. The area devoted to farming has increased in spite of the scarcity of farm hands, the decrease in horses and mules because of demands of the government and foreign countries and the fertilizer conditions. Lime is being used on over half of the farms. The acreage given to potatoes is now being looked up and there has been a ready sale for seed potatoes at the unprecedented price of $5 and $6 a bushel. A proposition for the State to buy up seed beans of the army or navy variety has been abandoned, but assurances of State aid in harvesting and marketing this crop and also crops of peas, corn, buckwheat, in which production the state leads, and fruits are being given. One of the suggestions to take care of the orchard crops is the formation of flying squadrons of pickers and packers which would solve to a certain extent the labor problem and prevent the annual loss of fruit which can not be handled.

As an illustration of the hold the canning and preserving propaganda has taken it may be stated that second hand containers, jars and the like are being bought up at prices approximating cost when new.

Texas.

State Pure Food Commissioner Hoffman has announced that since the inauguration of a campaign for pure vinegar in Texas, more than 48,000 gallons of vinegar that does not come up to the standards has been seized and destroyed. This vinegar was advertised as apple vinegar, whereas, in fact, it was not apple vinegar.

Utah.

The State Pure Food Commission organized at Salt Lake City on May 22, with Walter M. Boyden, State Dairy and Food Commissioner, as chairman, and George A. Shorten, of Ogden, as secretary.

Wisconsin.

An ordinance has been introduced at Milwaukee, Wis., calling for the licensing of all spring water companies in that city. This will place the companies under the supervision of the Health Department and it will impose restrictions on the manner of bottling, handling and selling of the water.

C. B. Post, County Agricultural Agent at Ashland, Wis., has started to seize all potatoes necessary for seed. He has been ordered to do this by C. P. Norgord, State Commissioner of Agriculture. The state will pay for them later. Included in this order soon will be grain seed.

The committee on food conservation of the Winnebago County Council of Defense is arranging to make an appeal to farmers at this time on the question of exterminating rats, because of the immense amounts of food that are destroyed or made unfit for use. Data on the relation of rats to commercial losses, to disease conditions in cities and to fires and other matters in which the pest is concerned are to be gathered and prepared for an appeal to the growers and handlers of food products. This is said to be the particular time for action against the rodents, as they are breeding now and killing poultry and doing other damage.

Mayor Daniel W. Hoan, as chairman of the Council of Defense of Milwaukee city and county, has turned over to Assemblyman Otto, chairman of the committee on judiciary, and to A. T. Van Scoy of the State Council of Defense, a bill giving county councils of defense full power to control sale and distribution and fix prices of food, fuel and necessities of life during the war period.

The bill, drafted by Mayor Hoan and Wheeler P. Bloodgood, chairman of the Wisconsin Defense League, and indorsed by the common council and the county board, proposes to make the county council practically food dictator in cases of emergency.

The bill would give the council full powers during the war period to deal in, and seize and set prices of, food, fuel and necessities; to take over for the time needed any storage or warehouses; to limit the food consumption.

Reports may be required of all storage houses, stores or dealers in food products of all such materials on hand. The bill further empowers the councils to require registration of all persons and all dependents during the war period, and provides that any false reports shall come under the general laws governing perjury.

The bill provides that no injunctions or restraining orders may be issued by any court commissioner, or by any judge of any circuit court restraining any county council from carrying out its work.

THE AMERICAN FOOD JOURNAL

—with which was combined on St. Patrick's Day, 1917—

The American Food Manufacturer

There is no higher art than that which tends toward the improvement of human food.—*Henry Ward Beecher.*

ROBERT GORDON GOULD, *Editor*

Vol. XII JULY, 1917 No. 7

Food Conservation Among the States.

One of the most significant articles in this issue is that devoted to a resumé of what many of the states have done since the declaration of war in an effort to stimulate the production of food and to conserve its use. The pages of this JOURNAL are, so far as we know, the only gathering point for news concerning the very important matter of state activity in regard to food.

Wholesale Grocers Convene.

The 1917 convention of the National Association of Wholesale Grocers was well named the "Liberty Convention," as practically the entire affair was devoted to discussing means whereby the wholesalers might best serve their government in time of war. President Whitmarsh has been in close touch with Mr. Herbert Hoover ever since that gentleman's return from Belgium, and it was at his instance that the convention unanimously endorsed the Lever Bill and in other ways went on record as favorable to the administration's program for food control. There is some gossip to the effect that Mr. Whitmarsh may be selected by Mr. Hoover as an *aide de camp* in the important matter of mobilizing the food supplies of this nation. It would be difficult to suggest a more appropriate choice. Theodore F. Whitmarsh, of Francis H. Leggett & Company, New York, has a comprehensive knowledge of the food industry and is endowed with great breadth of vision and intense patriotism as well as a penchant for indefatigable methods of work. The duties to be assumed by Mr. Hoover have to do with food handling rather than food production. This is the phase of the food industry where a wholesale merchant feels most at home and where the genius of a man like T. F. Whitmarsh, the three-time president of the National Association of Wholesale Grocers, would be most helpful to the nation. That the Association has established a permanent Washington bureau in charge of Secretary Beekman is significant.

Standards for Butter.

On the 12th of June there was held in the Hotel Sherman, Chicago, a public hearing on milk products. Milk and cheese were discussed at length, but the main interest centered around butter. Chairman William Frear of Pennsylvania announced that the joint committee on standards and definitions was primarily interested in obtaining from those in the butter industry advice as to what terms should be used in defining butter; whether the definition should be based on a fat content merely, a moisture content merely, or both together, or whether the casein content or other technical constants should be included. Early in the session Professor M. Mortensen, of Iowa State College, at Ames, gave as his opinion that butter should be defined in such a way as to call for 80 per cent butterfat and 16 per cent moisture, with not more than 1½ per cent of casein nor more than 3 per cent of salt. His statement was concurred in, with practically no change, by Professor O. F. Hunziker, late of Purdue University, but now manager of the manufacturing department of the Blue Valley Creamery Company, Professor G. M. McKay, secretary of the American Association of Creamery Butter Manufacturers, and others prominent in the butter industry.

Passing by for the time the debatable point of legalizing 16 per cent as the normal water content for butter, this JOURNAL is anxious to know just how any standards, no matter what may be the figures chosen, can under present conditions be established for butter. No longer ago than the April issue we printed an abstract of a Federal court decision in Montana in which butter was defined in terms of manufacturing processes, the element of normal manufacture being considered of more importance than that of technical constants. The decision was based upon the law as it now stands and represents the present legal status of butter. If we are able to interpret this phase of the matter aright, every time butter is defined by a court it is defined as a product resulting from the normal churning of cream into the solid form commonly used as a table fat. As the Montana judge stated, in one case butter containing 12 per cent moisture might be deemed adulterated, whereas another butter containing 18 per cent moisture might not be considered adulterated, the matter hinging upon the means and intent by which the moisture found its way into the finished product.

With such decisions before us, what use is there in endeavoring to establish legal standards for butter without first so amending the present law as to permit of a definition which will not be overthrown by the court as soon as it is litigated? This point has been raised by others. It is not new. President J. J. Farrell of the National Creamery Buttermakers' Association has more than once called for action designed to so amend the present law controlling the manufacture of butter as to permit of its being standardized.

Honesty in Advertising.

Evidently *The Saturday Evening Post* is sincere in its protestations that all advertisements appearing in the pages of that periodical must be truthful. At any rate, so it is rumored, the *Post* refused to carry the advertisements of the National Dairy Council, the leading feature of which was the phrase "There is no substitute for butter." As this JOURNAL pointed out at the time of the appearance in the *Chicago Sunday Tribune* of the first full page from the dairymen, their advertising copy overstepped all reasonable bounds. The latitude allowed advertising on the ground that it is nothing but "salesman's patter" is not limitless. Impartial dietitians especially deprecate the wide publicity being given to the dairymen's selfish plea to "cook with butter." This phrase, in the opinion of this JOURNAL, is more likely to prove mischievous than is the patently absurd claim that there is no substitute for butter. It is greatly to be regretted that apparently there is no one connected with the *Chicago Tribune* with power to pass upon advertising matter of this sort. Since the publication of this series of anti-social advertisements the United States Government has spread abroad advice to the housewife, adjuring her to use no butter for cooking purposes. Action of such nature will help overcome the malign influence of the Dairy Council's advertising; but it will not entirely do away with the evil effect of the viciously selfish propaganda being carried on by the National Dairy Council, and under the hypocritical guise of patriotic endeavor.

Containers.

There is much talk of a probable scarcity of containers. A couple of months ago the tin plate situation was so alarming as to call for suggestions from Washington to the effect that so far as possible fiber and other substitutes be used for the tin cans ordinarily employed in vending many forms of dried foodstuffs. Word has recently been received that the situation is not as critical as it was believed to be earlier in the year and it is quite probable that the shortage in tin cans will not be as serious as at one time seemed to be the case. The situation with regard to glass containers is, according to manufacturers thereof, by no means desperate. Messrs. Ball Brothers of Muncie, Indiana, makers of the famous Mason jar, tell us that they believe they will be able to supply the demand, which will probably be very heavy this year but which up to date has not been out of the ordinary. Those who are in touch with amateur canning movements can help in this particular by seeing to it that orders for jars are made out and sent forward at the earliest possible moment. It is reassuring to know that although the raw materials used in the glass industry have advanced very sharply of late, there has not been a corresponding increase in the price of the finished product. If the unusual demand created by the more than ordinary amount of amateur gardening now being carried on is handled intelligently the glassware people will probably be able to fill all orders in their entirety. There is much more likelihood of shipping facilities causing trouble than there is of the stock of glass containers being prematurely exhausted. This shipping difficulty can be obviated by early ordering.

Science: Pure and Applied.

Our native modesty prevents us from publishing many of the letters which reach this desk from day to day. Occasionally, however, we are quite unable to resist the impulse to print letters which are really significant as to the many-sidedness of THE AMERICAN FOOD JOURNAL. The same mail recently brought us two letters representative of branches of the food industry widely separated both as to nature and geographical location. One, coming from the head of the Home Economics Department of a college for teachers maintained by the Empire state, asks for a sample copy of the JOURNAL in view of the fact that it is being considered for use the coming year by the students of domestic science. The other, on the letterhead of a firm of wholesale grocers in Texas, runs as follows: "We read with great interest your article on soda water in a recent issue. We have a friend who is thinking of going into the soda bottling business; he also wants to make ice cream in the same plant. Would you kindly give us the names of several of the best manufacturers of bottling machinery and ice cream machinery, letting us know also where to secure bottles, etc. He also is thinking of possibly a little later on getting out a beverage like Bevo, Pablo, etc. Do you know where the machinery for such a beverage can be bought and the approximate cost of such a plant?"

A journal of such nature as to warrant its use as collateral reading by those who are preparing themselves to teach domestic science, and which at the same time is regarded by business men as the logical source for highly important information connected with the inception of a new enterprise may perhaps be pardoned for occasionally calling attention to the unique position it occupies in the food industry.

Bread No Longer Returnable.

From time immemorable the corner grocer has handled the product of the commercial bakeshop on a consignment basis. The baker, having no sales force of his own, left his wares with the grocer in the hope that the grocer's patrons would buy, but if the grocer's patrons did not see fit to buy the bread there offered for sale the loss was the baker's and not the grocer's. The usual percentage allowed the grocer is 20 per cent. This state of affairs has existed until the present moment, although of late years there have been many critics of the system. Commercial bakers, from time to time, have endeavored to place their commodity on the same basis as that occupied by all other foodstuffs—one of outright sale to the retail merchant. The return privilege, as it is called, apart from being a relic of a bygone economic day, is very susceptible to abuse, although be it said that it is abused more often by the get-rich-quick baker than by the grocer. In order to make an impressive showing in the grocer's shop the baker's salesman uses his persuasive wiles to induce the grocer to order far more bread than there is any possibility of his selling with the understanding that all unsold loaves will be redeemed by the baker. The bread so sacrificed on the altar of competition is sold by the ton as chicken feed and the financial loss due to the transaction is charged to advertising. This state of affairs no doubt is responsible for the alacrity with which the more thoughtful bakers have acquiesced in the governmental suggestion that for the duration of the war, at least, this particular economic leak be plugged. Very recently Commissioner Barnard of Indiana issued a regulation calling for practically the same sort of action as has now been suggested by the National Council of Defense—that from this time forth bread shall be sold to the retail merchant and not consigned to him. One of the leading Chicago retail grocers, Mr. Sol Westerfeld, tells us that this action has not met with unanimous approval by the grocers, although their attitude is merely one of desiring to see the experiment carried out fully before expressing a final opinion in regard thereto. Adverse action has not been taken by the retail grocers, either individually or collectively, and there is probably no reason to expect such action. The retailers point out that there is certain to be a loss due to stale bread under any method of selling that product and the baker is in a better position to make effective use of stale bread than is the grocer. The commercial bakers are endeavoring to make action on their part unanimous, and with that end in view have organized their industry by the formation of what is termed the "War Emergency Council of the Baking Industry," consisting of 193 members scattered throughout the Union. At the time of going to press reports were coming in from members of this council to Secretary J. M. Bell of the National Association of Master Bakers, gratifying both in volume and in the practically unanimous acquiescence in the government's suggestion.

There Is No Substitute for Milk.

The fact that milk at the present price of 10 cents a quart costs 1½ cents for each 100 calories should not be permitted to dissuade one from generous use of that most excellent food. In all cases the calorie value is but a partial statement of the truth and in the case of milk especially does the caloric value fail to express the whole truth. As should at all times be borne in mind, the calorie value is limited to the ability of a food to supply energy to the body, physiological energy (for obvious reasons) being expressed in terms of heat. Not only is some of the food value of milk due to protein but, what is more important, the butterfat of milk is rich in the much discussed food accessory termed provisionally by the leading research worker in this field "fat soluble A," and commonly referred to as "vitamines." Professor E. V. McCollum, late of the University of Wisconsin and now in charge of the nutritional work of the Rockefeller Foundation, is to be credited with the latest and most significant experimentation along this line. While the exact nature of McCollum's fat soluble A is not yet known, certain facts in regard thereto are well established. One established fact is that fat soluble A is found abundantly in the butterfat of milk. Another demonstrated fact is that agitation in the presence of oxygen destroys the value of fat soluble A. Another fact is that while fat soluble A will in a neutral or mildly acid medium withstand heat and pressure it promptly loses its efficacy in an alkaline medium. On another page of this issue is to be found the first of Mr. Herbert Hoover's official promulgations to the American public. Therein he states that butter is necessary for the growth of small children. His advice should be read in the light of our present knowledge of the sole peculiarity of butterfat which renders it so highly desirable a part of our dietary. As a matter of fact, most commercial butter is made from cream separated by means of centrifugal action, the oxidizing effect of which upon fat soluble A should theoretically be fatal to its effectiveness. Furthermore, much cream used for commercial butter is neutralized by treatment with a rather strong alkali, a chemical reaction which in the laboratory has been found to be fatal to the vitality of fat soluble A. One should be careful not to confuse virgin butterfat with commercial butter. While high grade dairy butter would probably be found to be rich in fat soluble A, it is by no means to be assumed that such would be the case with commercial creamery butter. There is no substitute for milk—whole milk. Here, at least, we are upon solid ground and that phrase should be impressed upon the consciousness of every American mother. Milk should be safeguarded against contamination in every possible way. Such protection costs money and is worth it. Milk will probably be more expensive rather than less as the days go by, and it will be worth the advanced price. An entirely different state of affairs obtains in regard to butter. There are many excellent substitutes for butter and every pound of butter substitute consumed relieves the economic strain on milk to a certain extent. As Professor McCollum stated in an address at the University of Chicago on the 6th of the month, there is no need to use butter in order to endeavor to incorporate in the diet a sufficient amount of the food accessory under discussion, adding that in his own household he uses oleomargarine as a table fat relying upon the use of whole milk for an adequate supply of this vitalistic principle. Before the war is over it is quite possible that Mr. Hoover will be advising the American public to use milk as liberally as the purse permits, employing butter substitutes in an effort to keep the price of milk within the reach of the average wage earner.

RETAIL PRICES JULY 1, 1917

Figures on the left give prices per pound and per 100 calories. Figures on right give prices as ordinarily purchased. St. Matthews, So. Carolina, represents the small country town of about, 1,500 population. Lima represents the medium sized inland city. The reason for the selection of the other cities is obvious.

Price per pound Cents	Per 100 Calories Cents	CANNED FOODS	St. Matthews	Lima, Ohio	Boston	New Bedford	Worcester	† New York	Chicago	New Orleans	Denver	San Francisco
12.6	1.4	String Beans, 1 lb. 3 oz. can	$0.15	$0.15	$0.15	$0.15	$0.20	$0.12	$0.15	......	$0.12½	$0.12½
12.3	2.8	Corn, 1 lb. 4 oz. can	.15	.18	.15	.15	.15	.13	.15	$0.15	.15	.15
12.0	4.8	Peas, 1 lb. 4 oz. can	.15	.15	.13	.15	.19	.12	.15	.14	.15	.12½
8.3	8.3	Tomatoes, 2 lb. 1 oz. can	.20	.22	.19	.18	.23	.17	.20	.19	.17	.17
12.0	4.8	Peaches, 1 lb. 13 oz. can	.25	.25	.21	.15	.28	.21	.20	.23	.20	.20
11.7	1.7	Pineapples, 1 lb. 14 oz. can	.25	.25	.19	.18	.23	.23	.20	.23	.25	.20
25.2	3.8	Salmon, red Alaska, 1 lb. can	.25	.28	.28	.22	.30	.23	.25	.27	.17½	.25
69.3	7.5	Sardines, 3¼ oz. can	* .06	.15	.16	.12½	.12	* .10	* .12½	.18	.20	.15
		DRIED FRUITS										
13.8	1.0	Evaporated Apples, lb		.13	.13	.13	.15	.13	......	.14	.15	.12½
16.6	....	Evaporated Peaches, lb		.20	.20	.13	.15	.13	.22	.15	.12½	.11
15.6	1.3	Prunes, med. size, lb		.15	.16	.15	.17	.14	.15	.15	.15	.12½
		CEREAL PRODUCTS										
7.0	.43	Wheat Flour, 49 lb. bag	3.25	3.90	3.70	3.50	3.50	3.50	3.40	3.50	3.00	3.40
7.0	.44	Rye Flour, 24½ lb. bag		......	1.96	1.70	1.65	1.75	1.60	......	1.55	1.84
7.6	.47	Graham Flour, 10 lb. bag		......	.74	.76	.75	.85	.80	......	.65	.85
6.7	.37	Rolled Oats, bulk, lb		.06	.07	.06	.07	.06	.06	.06	.08⅓	.07
10.4	.65	Rice, fancy, head, lb	.07½	.12½	.11	.12	.12	.09	.12	.09	.10	.08
5.8	.35	Corn Meal, lb		.06	.06	.05	.07	.05	.05	.06	.05	.06
8.8	.54	Pearl Barley, lb		.10	.07	.08	.09	.08	.10	.08	.08⅓	.10
9.8	.82	Bread, lb.	.08	.10	.10	.10	.10	.10	.10	......	.10	.10
20.0	1.05	Crackers, Soda, bulk, lb		.22	.29	.18	.20	......	.20	.20	.16	.15
25.9	1.36	Uneeda Biscuit, 4⅝ oz	.07	.08	.07	.08	.07	.07	.07	.07	.07½	.10
12.3	.75	Macaroni, bulk, lb	.10	.12½	.12	.12	.15	.12	.12	......	.12½	.12½
		SUGAR AND SYRUP										
8.5	.46	Granulated, per lb	.08½	.10	.08½	.08	.09	.08	.08	.08⅓	.08	.08
7.2	.50	Corn Syrup, 10 lb. pail	.75	.75	.76	......	.63	.65	.75	......	.75	.75
20.3	1.37	Comb Honey, lb	.10	.22	.25	......	.25	.25	.25	......	.15	.20
35.0	1.55	Cocoa, lb.		.40	.20	.25	.25	.20	.50	......	.45	.40
		FATS										
43.8	1.25	Creamery Butter, lb	.50	.45	.46	.42	.47	.45	.40	.45	.35	.45
26.2	.64	Pure Leaf Lard, lb	.25	.30	.27	.25	.28	.28	.24	.25	.27	.25
30.6	.89	Oleomargarine, lb.		.33	.25	.30	.27	.30	.29	.25	.25	......
54.6	1.37	Italian Olive Oil, qt. tin		1.00	.85	.90	.85	1.00	1.60	.75	1.35	.90
28.6	.72	Cottonseed Oil, qt. tin	.35	.70	.55	......	.42½	.80	......	......	.70	.50
26.7	.67	Corn Oil, qt. tin		.60	.55	......	.35	.40	.50	......	......	.50
4.8	1.55	Milk, qt.	.10	.10	.11	.11	.10	.09	.10	.12	.10	.10
32.5	1.56	Cheese, American, lb	.35	.35	.28	.28	.32	.35	.40	.30	.35	.30
25.9	4.31	Eggs, fresh gathered, doz	.35	.37	.40	.38	.47	.42	.40	.37	.35	.40
		VEGETABLES										
5.2	1.74	White Potatoes, lb	.05	.06⅔	.05	......	.05½	.05	.04½	......	.05	.05
2.0	.44	Sweet Potatoes, lb	.02	......	......	......	......	.08	......	......	......	......
4.8	2.40	Onions, lb.		.06	.05	.05	.06	.05	.04	.05	.04	.03
18.5	1.17	Beans, Navy, lb		.22	.18	.16	.20	.14	.16	.18	.20	.18
19.2	1.20	Beans, Lima, lb	.15	.22	.18	.18	......	.16	.18	.18	.25	.20
		MEATS										
28.8	4.43	Beef Round Steak, lb	.25	.32	.33	.26	.40	.30	.28	.20	.30	.25
32.5	3.87	Leg of Lamb, lb		.35	.30	.32	.38	.32	.32	.28	.35	.30
25.3	2.90	Leg of Mutton, lb		.30	.23	.22	.24	.22	.28	.25	.30	.20
29.4	2.38	Pork Chops, lb		.30	.28	.24	.35	.30	.28	.30	.30	.30
37.9	7.57	Veal Cutlets, lb		.30	.40	.35	.43	.35	.40	.40	.45	.30
34.9	1.84	Ham, Cured, lb		.38	.28	.28	.50	.26	.45	.29	.32½	.29
37.3	12.84	Chickens, Broilers, lb		.40	.35	.32	.33	.35	.39	.29	.50	.40
19.4	5.39	Salt Cod, lb		.25	.19	.18	.23	.20	.20	......	.15	.16
19.3	1.93	Salt Mackerel, lb		.20	.20	.10	.20	.20	.25	......	.15	.25
23.1	5.12	Halibut, lb.		.20	.22	.22	.30	.25	.25	......	.22½	.20
23.4	3.65	Salmon, lb.		.22	.25	.22	.25	.35	.25	......	.25	.20
15.0	4.68	Whitefish, lb.		.22	.15	.05	......	.24	.25	......	.30	.08

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* Domestic. † New York prices were received when the JOURNAL was on the press, and are not included in the average prices.

Changes in State Food Laws

A Digest by the Editor.

A LARGE number of states held the biennial session of their legislatures in the first six months of this year, and a considerable proportion made some amendment to their food laws. A synopsis of these new laws is given below. In a few cases the legislature is not yet adjourned or has adjourned so recently that its acts cannot be reported in this issue.

California.

Amendments to the California food law were passed at the recent session of the legislature as follows: Section 3, which provides that the food inspection decision of the United States Secretary of Agriculture shall automatically become law in this state is amended by the statement that nothing in the section shall authorize any adulteration because a standard of purity has not been proclaimed by the Secretary of Agriculture. This adds nothing to the meaning of the law but it aids in court cases where the defendant asks for a dismissal on the ground that there is no definite printed standard for the article of food under consideration. This is especially true where local political influence favors the defendant.

Section 9 was amended to authorize increases in salary of the director from $3,000 to $3,600 per year, of the assistant from $1,500 to $1,800 per year, and the consulting nutrition expert from $1,000 to $1,200 per year. Amendment to Section 10 gives the director of the state laboratory and the food and drug inspectors the same powers as are possessed by peace officers. This greatly expedites court cases in which the local peace officers are slow to act or are influenced politically in favor of the defendant. Amendment to Section 20 provides that the director of inspectors may quarantine decomposed perishable foods on the spot; all other foods may be quarantined by the director after examination or analysis at the state laboratory. This is a valuable provision which makes it possible to keep spoiled goods off the market pending action by the courts. During the past two years this power has been exercised under the general laws of the Board of Health, but the deduction was weak in some instances, and it was considered best to make a specific amendment to the food law.

Idaho.

The state of Idaho has enacted a law guarding against adulterated or misbranded gasoline, lubricating and fuel oil, which will be administered by the state department of foods and drugs. It accepts the standards of the United States Bureau of Mines as to strength, quality and purity, and prescribes that all oils must be marked with their true name and grade. Possession is declared to be prima facie evidence of the dealer's intention to sell in violation of the law. The penalty is a fine of not more than $300, each individual sale to be counted as a separate offense. It is further provided that in case of conviction under the act, the inspector shall publish the fact in at least one newspaper published in the county, giving the name of the article, the name of the manufacturer, the name of the seller, and such information as will be beneficial to the consumers.

Illinois.

The legislature of 1917 passed a Cold Storage law, incorporating most of the regulations of the Uniform law, with the important addition that, although the period of storage is limited to twelve months, the term may be extended by a certificate of the Director of the Department of Agriculture stating that, upon inspection, he believes that the food may be held in a wholesome state for a longer period. These extensions are granted for periods, specified in the certificate, at the department's discretion. Food Commissioner John B. Newman, in commenting on the bill, says: "We want to encourage storage. Because an egg or hen is good on the 365th day is no reason why it is automatically bad on the 366th day. But whereas we do need storage, and people should have a better understanding of the merit of storage products, yet at the same time there must be regulation, and something must be done to interfere with the purely speculative element who care nothing for the consumer or what he pays."

Laws were also passed compelling the marking of all containers used for the transportation of dairy products with the name or brand of the manufacturer or shipper, and permitting a producer of milk, selling on a butter-fat basis, to demand samples of his milk from any creamery or factory which he is selling to, and to have the samples analyzed by the State Dairy Department. The samples in any one month must be not less than two or more than four. An act regulating and establishing standards for paint and oils was also passed, to be administered by the Dairy and Food Department.

Indiana.

Indiana has adopted a law by which all foodstuffs must be sold by weight, with exceptions, as follows: Fresh vegetables, such as young onions, radishes, beets and watercress, may be sold by the bunch; small fruits can still be sold by the quart or pint box; seeds in sealed packages may be sold by the package; apples may be sold by the standard U. S. barrel or box, and cranberries by the standard U. S. barrel; nothing in the act applies to articles sold direct by the producer delivering from house to house, and, finally, the buyer and seller, by written agreement, can exempt themselves from its provisions. The penalty is a fine of $10 to $30 for the first offense, $25 to $100 for the second offense and for the third and subsequent offenses, $100 fine and imprisonment in the county jail from 30 to 90 days.

Iowa.

The dairy law of Iowa was amended by the Thirty-seventh General Assembly as follows: The period for which license to operate the Babcock test is issued was changed to one year from date of issue instead of for the period ending May 31st; the maximum period for which a substitute tester may be appointed was changed to fourteen days instead of six days; the minimum content of total solids in milk was reduced to 11.5 per cent instead of 12 per cent; the minimum fine for violation of the dairy law was reduced to $10 from $25; and the salary limit of four assistant commissioners was increased from $1,400 to $1,600. The Weights and Measures Law was amended by making the United States standards for shape and capacity of Climax baskets also the standard for Iowa. The weight of a barrel of flour was fixed at 196 pounds and of a sack 49 pounds. The effect of this is supposed to be that while flour can be sold in containers holding any amount, the words "barrel" and "sack" must be restricted to refer to packages of the weight stated.

Michigan.

Under the provisions of House Bill 385, the office of Food and Drug Commission is created and that of Dairy and Food Commissioner is abolished, the change to take effect on April 1, 1918. The Food and Drug Commissioner's term is fixed at four years; his term is made to expire with the fiscal year on July 1st instead of January 1st; the Food and Dairy Commissioner succeeds to all the rights, duties, etc., of the Dairy and Food Commissioner, and in addition is in charge of the state's prohibition laws. His term is four years instead of two, his salary is raised from $2,000 to $3,500, his deputy's salary is increased from $1,500 to $2,500, the state analyst from $2,000 to $2,500, a chief clerk is provided for, and his salary fixed at $1,800, and all salaries and expenditures are to be paid out of the general funds of the state.

Montana.

The 1917 legislature of Montana increased the powers of the State Board of Health over the water supply by House Bills 193 and 233, the former of which gives it power to prescribe regulations under which sewage may be emptied into ponds or streams used as sources of water supply, and the latter gives him power to require the analysis of waters furnished or sold to the public, and to prescribe rules for the collection of samples for such analyses. House Bill 250 prescribes that the State Board of Health shall furnish a list of all adulterated and misbranded foods and drugs to the clerk of each county, giving the name of the manufacturer, the brand name, and the reason for classing them as illegal, with any necessary comment. These lists are to be published in the official paper of each county, not more than four times a year. However, any manufacturer found guilty of sending out illegal foods shall be given ten days' time in which to show why the results of the analysis should not be published.

Nebraska.

The Nebraska food law has been amended so that an inspector may, on examination, at once file charges with the county attorney when he finds a food product to be in violation of the law. Formerly the reading of the law required that all samples be submitted to the state chemist which in the case of spoiled foodstuff is frequently out of the question. Under the head of "Misbranding," the law was amended so that articles of food would no longer be deemed to be misbranded in respect to alcohol unless there is present at least one-half of 1 per cent. The former law required the statement of the correct percentage of alcohol in any amount whatsoever, which when present in trifling amounts led to considerable confusion. The commissioner was also empowered to adopt standards for food products whenever in his opinion it is necessary to effectively enforce the law. Certain changes in the salaries of the members of the department were also adopted.

Nevada.

The recent legislature of Nevada inserted in Section 4, which prescribes the standards of purity, that vinegar shall be considered to be adulterated if it be artificially colored. Section 19, relating to the procedure for seizure, is simplified by providing that when the commissioner or his agents have ground to suspect that any article of food is adulterated or misbranded, they can take an inventory of it and tag it "Suspected," after which it is unlawful to sell it until further notice from the commissioner. Seizure may be made without a warrant, and the commissioner and his inspectors are given the same authority as police officers. The legislature also passed a law requiring all cream used in the manufacture of butter to be pasteurized. Butter and ice cream, to be pure and wholesome, must be made from cream, produced under sanitary conditions from cows free from tuberculosis. Imported butter and ice cream must be pasteurized, or produced in plants which have been inspected by Nevada authorities as to their sanitary condition. Another bill raises the standard of butter fat in cream from 18 to 22 per cent.

New Hampshire.

New Hampshire passed a cold storage law in which it was provided that nobody shall operate a cold storage warehouse without a license from the State Board of Health; that no article of food shall be put in cold storage if it is deemed unwholesome, and the Board of Health is directed to make such inspection of the entry of foods into storage as may be necessary; all foods must be plainly marked with the date of entry, and none shall remain in storage for more than twelve calendar months; no article of food, having been released from storage for sale, shall be readmitted, and the State Board of Health is empowered to make all necessary rules and regulations for carrying the law into effect. Another act provides that on petition of 100 registered voters, the attorney general shall institute judicial proceedings to inquire into the causes of the increase in price of any necessity of life, labor being excepted. Standards for dairy products were fixed as follows: Milk, 11.85 per cent total solids, 3.35 per cent butter fat, and not over 500,000 bacteria per c. c.; skim-milk, 8.5 per cent total solids; cream, 18 per cent butter fat; butter, not less than 80 per cent butter fat, not more than 16 per cent water. Pure natural milk, with proportions properly marked, can be sold, even if sub-standard, and standardized milk, consisting of cream and skim-milk mixed to produce a certain resultant proportion of fats and solids, may be sold if they are properly labeled.

North Dakota.

At the last session of the North Dakota legislature the hotel law was amended so that the enforcement was placed in the hands of the food commissioner and authorizing the employment of the inspectors of the food department as deputies in the inspection of hotels. The oil inspection law was also changed so that the food commissioner becomes ex-officio oil inspector after July 1, 1917. The inspection fee is reduced from 5 to 3 cents a barrel, making it necessary to change the present system of inspection. The number of ports of entry will be reduced in accordance with the reduced appropriation, which is about one-half to two-thirds that formerly appropriated and used. A deputy inspector will be put in charge of the field work and will inspect all oil at ports of entry instead of in the interior, as heretofore.

The food commissioner is given authority over the issuance and protection of the new trade-mark of North Dakota. This trade-mark, consisting of a map of North Dakota, surmounted by the words, North Dakota Standard: Quality: Measure, and having beneath the phrase, "The State Backs It Up," may be used by any manufacturer, grower or producer of any article in North Dakota, for which a standard of purity, quality and strength has been determined by the food commissioner of the state. License to use the trade-mark is issued for one year and renewed annually, and depends primarily on the manufacturer or grower keeping his product up to the standard fixed by the food commissioner. A soda fountain law prescribes that all soda fountains shall be installed according to specifications approved by the commissioner and state chemist of the state, and operate under an annual permit. The commissioner is authorized to prescribe rules for the operation and installation of soda fountains.

Ohio.

Ohio adopted the uniform cold storage law, which has already been adopted in a number of states.

Pennsylvania.

The legislature of Pennsylvania adjourned on June 28, and the Governor has thirty days in which to consider the bills which have been passed. He has vetoed the Cold Storage bill, and still has before him the bill permitting the bleaching of flour and an act amending the Vinegar law. Another important measure is one relating to the testing of milk at creameries and cheese factories, by which the Food Department would protect the milk producer by making analyses with reference to butter-fat contents.

South Carolina.

The only act of the General Assembly amending or adding to the food law is one by which the Commission of Agriculture, Commerce and Industries is commissioned with the duty of enforcing Sections 411 to 418 of the Criminal Code. The effect of this is to put into action a number of laws relating to dairy products, the oldest of which was passed in 1896, but which, up to date, have been more or less dead letters.

South Dakota.

The recent legislature effected a general revision of all laws relating to food, placing them in one general and comprehensive code. This follows so far as practicable the Federal Food and Drugs Act, but contains features not found in the federal statute. Among these specific provisions are that:

The sale of meat from hogs fed on uncooked slaughter house offal or other substance unfit for animal food is prohibited.

Food is declared to be adulterated if it is not at all times protected from contamination by dust, flies or filth.

Canned fruits or vegetables made from bleached or dried products must be conspicuously labeled to show this fact.

Bleached flour must also be labeled.

Preservatives and harmful substances, such as borax, formaldehyde, salicylic acid, saccharine, fluorine compounds, and, in meats, sulphurous acid, are prohibited.

No more than 2 per cent of starch may be used in sausage, and dealers selling sausage containing any starch must display a conspicuous sign telling their customers that they use starch or cereal.

The new law gives the commissioner and inspectors more authority in obtaining information and samples It makes the taking of orders for future delivery a sale within the meaning of the law and provides suitable penalties for violations. All old laws covering the handling of foods are specifically repealed and the new law went into effect the first of July.

Utah.

Utah enacted the uniform cold storage law.

Washington.

Substitute Senate Bill No. 90 authorizes the Commissioner of Agriculture to adopt standards for foods, and prescribes that the standards of the U. S. Department of Agriculture shall also be the standard for the state of Washington. Proof that the standards have not been complied with shall be prima facia evidence in any prosecution of the violation of the law. The Washington Department of Agriculture has been working for some time to have the standards defined, as in this bill, in the interest of uniformity of food laws.

West Virginia.

House Bill No. 53 creates a Bureau of Markets in the Department of Agriculture and gives the chief of the bureau, acting under the Secretary of Agriculture and in co-operation with the Federal Bureau of Markets, power to make rules and regulations for the grading, packing, handling, storage and sale of all foodstuffs within the state, not contrary to law, and to enforce such rules and regulations by actions or proceedings in any court of competent jurisdiction. It is also his duty to investigate the cost of food production and marketing in all its phases, to assist in the organization of co-operative societies among producers and consumers and to advise and assist in the location of local markets. No rules or regulations have been issued as yet. It appears that this act creates a bureau with powers similar to the food and drug departments of the other states.

Wyoming.

There was no change in the food law. A commercial feeding stuffs law was enacted to be enforced by the dairy, food and oil department. The coal oil and gasoline law was repealed and re-enacted.

The following states report that no changes were made in their food laws: **Arizona, Arkansas, Delaware, Florida, Kansas, Maine, Minnesota, New Jersey, Rhode Island, Tennessee and Texas.**

Loss of Iron in Boiling.

The amount of iron that is actually available for the system is the subject of a paper by Katharine Blunt, of the University of Chicago and Florence A. Otis of the College of Emporia, Kansas, in the *Journal of Home Economics.* Of the many published analyses of vegetables giving the iron content, most are on the raw substance, not the cooked. Because of the importance of iron in the diet, and the habit some dietitians have of computing the percentage of iron in the cooked food on the published percentages of the raw, regardless of the methods of cooking, it seemed desirable to determine the iron losses in cooking. Spinach, string beans, navy beans, fresh peas and potatoes were used in the experiments. The authors found that the average loss on boiling, in the usual way, was, for spinach, 43 per cent; for string beans, 39 per cent; for navy beans, 32 per cent; for peas, 36 per cent, and for potatoes, 15 per cent. In conclusion, they say:

> "The vegetables all lost a large percentage of their iron. The loss was least for potatoes with their relatively small amount of surface exposed to the water, and most for spinach with its large surface, potatoes losing about a fifth of the total iron content, peas and beans between one-third and one-half, and spinach approximately one-half. These huge losses show clearly that the method of boiling vegetables in which the water is thrown away is highly wasteful of the important iron constituents."

PROGRAM

Of the Twenty-First Annual Convention of the Association of American Dairy, Food and Drug Officials

To be held at Atlantic City, New Jersey, July 31 and August 1, 2 and 3, 1917

The first session of the Convention will be called together Tuesday, July 31st. It will be devoted to the usual opening business; the roll-call, the address of welcome, the response, the appointment of committees, the President's address, the reports of the Secretary and the Treasurer, and the posting of amendments to the Constitution and the By-laws.

ADDRESSES TO BE MADE AT THE CONVENTION.

Clean Milk Products, by
Dr. Charles E. North, of the North Public Health Bureau, New York City.

Manufactured Milk Products, by
Frank C. Soule, of the Merrell-Soule Co., Syracuse, N. Y.

The Pasteurization of Milk, by
Dr. Lovett Morse, of the Harvard Medical College, Cambridge, Mass.

Co-operation Between Advertising Clubs and Food Officials, by
Richard H. Lee, of the Associated Advertising Clubs of the World.

The Claims and Composition of Some Patent Medicines, by
Dr. A. K. Cramp, of the American Medical Association, Chicago.

Further Report of the Committee on Swells and Springers, by
L. M. Tolman, Chief of the Central Inspection District, Chicago.
Discussion lead by Dr. W. D. Bigelow.

Commercial Edible Fats, by
Dr. David Klein, State Analyst of Illinois.

Sanitation and Health from the Food Standpoint, by
J. D. Mickle, Dairy and Food Commissioner of Oregon.

Outlines of Ice Cream Cases, by
James Foust, Food Commissioner of Pennsylvania.
W. B. Barney, Food Commissioner of Iowa.

Grades for Canned Corn, Peas and Other Foods, by
Dr. William Frear, Chemist, State College of Pennsylvania.

Soft Drinks, by
Dr. W. F. Hand, State Chemist of Mississippi.

The Use of Inferior Ingredients and Cheap Substitutes, by
Harry L. Eskew, Food Commissioner of Tennessee.

Permissions and Restrictions on Labels, by
John McCabe, Assistant Commissioner of Minnesota.

Herbert C. Hoover has been invited to address the Convention in open meeting, or to meet with the officials in Executive Session. If it is not possible for him to do this, owing to stress of business, if he so desires, the officials or a Committee will wait upon him at Washington.

One entire session will be set apart for the Federal Department. Dr. Carl Alsberg, Chief of the Bureau of Chemistry, will read a paper on a subject to be selected by him, and Dr. J. S. Abbott, in charge of State Co-Operative Food and Drug Control, will make the report of the Committee on Co-Operation. It is expected that the report of the Committee on Definitions and Standards will also be made at this session.

One morning session will be given over to Section A, The Association of State Food and Dairy Executives, and an afternoon session will be devoted to Section B, The Association of Official Food and Drug Chemists. An effort will be made to reduce to a minimum the conflict between the main program and the sectional programs. There will be no night sessions.

Food Conservation by the States

The movement for increased production and more efficient handling of the nation's food supply, under the direction of the State Councils of Defense has reached the point where some idea may be had of the probable effects of the campaigns that have been conducted. The following comprehensive report describes the organization and the activities in most of the states where the Conservation movement has had adequate support.

Arizona.

The Arizona State Council of Defense has a committee on production, conservation and distribution of food supplies, with Dr. R. B. von Kleinsmid as chairman. Dr. Kleinsmid is now touring the state and addressing large gatherings upon the subject of food conservation, as one of the chief duties of the people in the war. The Council has just completed a crop survey of the state which is embodied in a fifteen-foot map showing in various colors the acreage and location of the different crops. This makes it possible to know at a glance the exact amount of grain in a given radius and how best it can be handled. A serious situation arose in the Salt River valley, where the apricots and plums ripened faster than the market could take care of them. Thousands of tons of fruit would have been lost except for the prompt action of the Council. Miss Grace I. Tufts, with headquarters at the state house, organized a clearing house and spent the greater part of her time in arranging for volunteers to go to the orchards and pick the fruit for canning and drying. Squads of men from the state institutions, and the Boys' Battalion took part in the work. The conservation of apricots and plums has been very successful, although there was still some loss. The registration of women in behalf of food conservation is progressing under the direction of Mrs. Eugene Brady O'Neill.

Connecticut.

The State Committee of Food Supply is working with the Connecticut College of Agriculture to increase the interest in home canning. A great many people have enlisted in the work throughout the state, and many community plants are being put into operation. Demonstrations are given weekly at the agricultural college. At the first demonstration in June sixty people made special trips to attend, not only from Connecticut, but from Massachusetts, Rhode Island and New York as well. R. W. Pease of the United States Department of Agriculture is co-operating with the state committee to secure an adequate supply of farm labor. He recently interviewed 150 men in New York City, about half of which were strong, conscientious and reliable men, but only four had the necessary experience to make them of value to the farmer. The enrollment in the Boys' Working Reserve is satisfactory.

Delaware.

Regarding the situation in Delaware, Governor John G. Townsend, Jr., says: "I assure you that through our committees, appointed on food production and conservation, we have organizations working in every district of the state to encourage the increased production of crops of every kind, with organizations also working to conserve the food and products after they have been raised."

Georgia.

In Georgia the work for food conservation is largely being carried on by the Market Bureau of the Georgia Department of Agriculture, of which Lem B. Jackson is the director. In a letter received June 13th, Mr. Jackson says:

"At present we are concentrating our efforts in perfecting our market bureau to assist in marketing farm products, which will be produced in this state to a greater extent than ever before. On account of the boll weevil and agitation for greater production of foodstuffs, the increase should amount to about 50 per cent.

"In order to facilitate the handling of farm products, we are assisting in the organization of local enterprises in every county to operate canneries, feed mills, potato curing houses and warehouses for storing, grading and packing products for reshipment to other points. In other words, we are striving to establish in every county in the state enterprises that will provide a cash market for all surplus farm products, as well as facilities for putting these products in marketable shape so they can be readily disposed of.

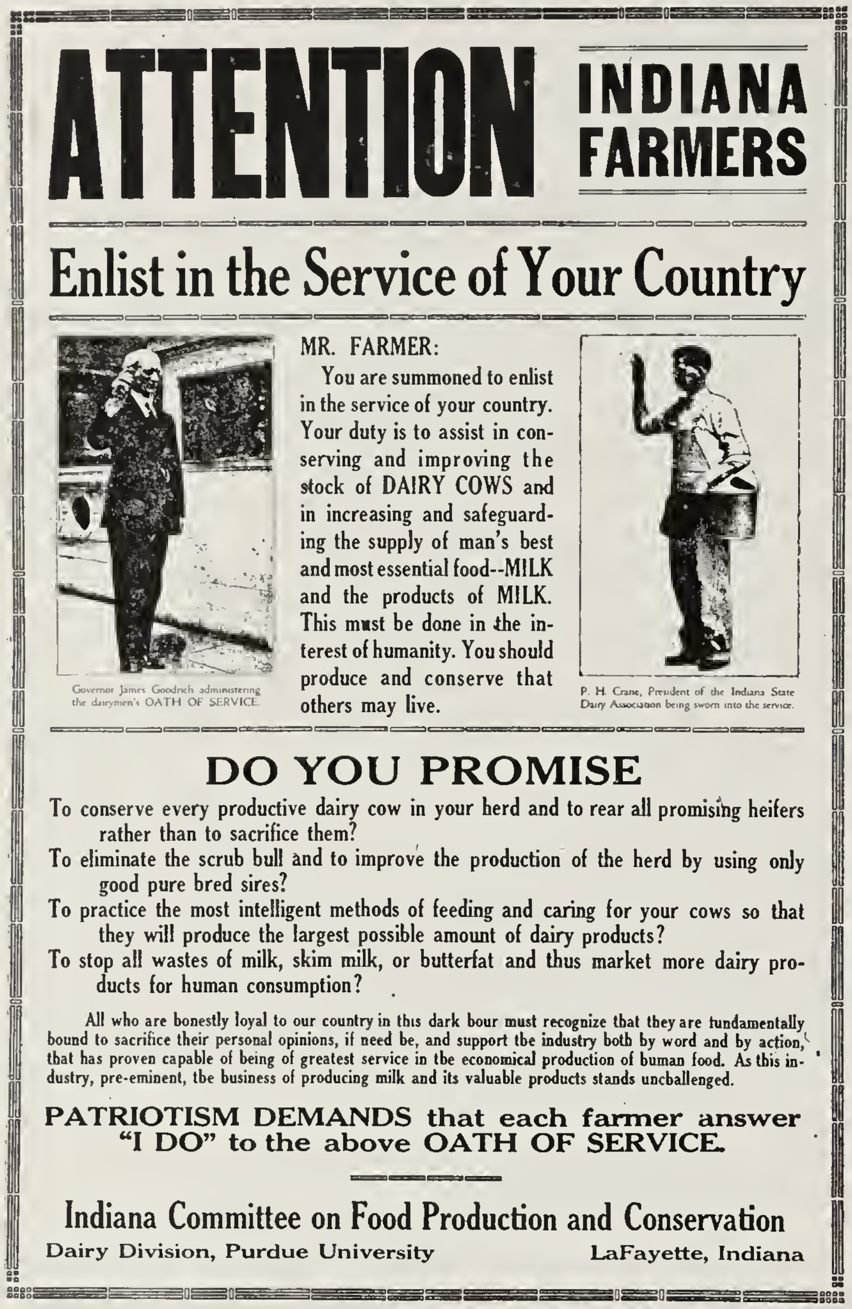
"Further, our state food council is rapidly organizing in each county local county councils, composed of a chairman and secretary, with members from each militia or school district in the county, who hold regular meetings urging the greater production of foodstuffs and who are pledged to co-operate with the state food council and in turn with the National Council at Washington. This gives us a working body with whom we can communicate for the distribution of information and whom we can call on for information or work requested of us by the government, such as food and labor surveys, etc.

"We are glad to say that the people of our state are giving us their enthusiastic support in these movements, county councils being rapidly organized and enterprises for conserving and marketing farm products being formed daily in various parts of the state."

Indiana.

At the time when war was about to be declared against Germany, people of Indiana realized that the solution of the food problem would devolve on the great agricultural states such as theirs, and considered action that might be taken to secure a larger agricultural production. About April 2d, Dr. H. E. Barnard, state food commissioner, suggested to Governor Goodrich that a conference of interested agricultural people be called. This conference resulted in the appointment of a committee of twelve, of which Ralph W. Moss, of Centerpoint, was made chairman, and which included Dr. Barnard and Prof. G. I. Christie, of Purdue University.

This committee met immediately and it was decided to call a meeting at each court house in the state for April 7th. The governor sent telegrams to the county agent in each county having such an officer, and to a leading citizen in each of the other counties. These men were directed to arrange for a room, a chairman, speakers and publicity, and to use every agency to secure a large attendance. As a result large and enthusiastic meetings were held in every county of the state. The county agents were instructed to formulate a permanent organization at these meetings, and to counties without county agents, representatives of Purdue University were sent to do the same thing. County chairmen and secretaries were selected, with committees on corn, live stock, home gardens, poultry, dairying, horticulture, conservation and labor. In some counties young men from Purdue stayed on the ground for two weeks securing interest and co-operation in the work.



ATTENTION INDIANA FARMERS

Enlist in the Service of Your Country

MR. FARMER:

You are summoned to enlist in the service of your country. Your duty is to assist in conserving and improving the stock of DAIRY COWS and in increasing and safeguarding the supply of man's best and most essential food--MILK and the products of MILK. This must be done in the interest of humanity. You should produce and conserve that others may live.

Governor James Goodrich administering the dairymen's OATH OF SERVICE.

P. H. Crane, President of the Indiana State Dairy Association being sworn into the service.

DO YOU PROMISE

To conserve every productive dairy cow in your herd and to rear all promising heifers rather than to sacrifice them?

To eliminate the scrub bull and to improve the production of the herd by using only good pure bred sires?

To practice the most intelligent methods of feeding and caring for your cows so that they will produce the largest possible amount of dairy products?

To stop all wastes of milk, skim milk, or butterfat and thus market more dairy products for human consumption?

All who are honestly loyal to our country in this dark hour must recognize that they are fundamentally bound to sacrifice their personal opinions, if need be, and support the industry both by word and by action, that has proven capable of being of greatest service in the economical production of human food. As this industry, pre-eminent, the business of producing milk and its valuable products stands unchallenged.

PATRIOTISM DEMANDS that each farmer answer "I DO" to the above OATH OF SERVICE.

Indiana Committee on Food Production and Conservation

Dairy Division, Purdue University LaFayette, Indiana

AN APPEAL FOR INCREASED MILK PRODUCTION.

With a view to organizing the state forces through one bureau, Prof. Christie, of Purdue, was appointed state food director, and assigned offices in the state house. The city garden movement was taken up vigorously and a majority of the Indiana cities appointed supervisors to co-operate with citizens to get the best results. The state committee meets every Thursday and the result is that all forces are co-operating and Indiana is accomplishing a work greater than she ever attempted before.

In a recent letter, W. Q. Fitch, assistant secretary of the Committee on Food Production and Conservation, says:

"The food committee have started a dairy campaign in the state. Semi-monthly informational bulletins are mailed out to some 60,000 dairymen of the state. In addition to this posters have been put up in prominent places in the rural districts. (*One of the dairy posters is illustrated.*) Lecture tours have been conducted in a number of the prominent dairy counties.

"The committee is also launching a silo campaign. It will be the object of this movement to increase the number of silos in the state materially. The number of silos now upon the 218,000 farms in the state is only sufficient to meet the needs of 10 per cent of the farms. An increase of one-third in the number of silos would not be too many to be used effectively by their owners. In fact, an increase of 10,000 in 1917 would mean that approximately one-half million tons more palatable, succulent feed would be available for use next winter and spring. The campaign has been put in immediate charge of Maurice Douglass of Flat Rock, Ind., and will be conducted by means of publications, posters, lecture campaigns and publicity through the newspapers.

"A campaign conducted in a very similar manner is one on 'more and better wheat' and which is well under way at this time. The committee has selected as its state leader, J. C. Beavers, of Purdue University. It is hoped to get the Indiana farmers to seed at least 3,000,000 acres of wheat this fall. One of the schemes in this campaign is to send competent representatives to each county to personally select fields of wheat of good varieties to be saved for seed next fall. The millers and grain dealers of the state have been asked to pay a reasonable bonus to the farmers in order to encourage them to handle this seed in the best way possible.

"Other activities of the committee, through the State Council of Defense, have been to secure cars for the shipment of fertilizer, silo material and drain tile.

"In addition to these activities the garden agitation has caused at least 200,000 amateur gardeners to assist in solving the food situation.

"The wheat acreage and condition in the state is fully 25 per cent better than last year. On account of the gardens, the potato acreage at the present outlook is far more than a full crop. The oats acreage and condition is considerably above the average. The corn, while getting a late start, is making wonderful strides and a very much larger acreage than last year is indicated. At least 100,000 acres was flooded and drowned out due to high water during last of May and the first of June.

"The committee is very well pleased with the work accomplished to date and quite hopeful as to the prospects of larger production."

Iowa.

In Iowa the Agricultural Extension Department of the State College of Agriculture, of which R. K. Bliss is the director, has taken care of the increase in production and conservation of foods. As a starter, half a million bulletins on gardening, general crop production and other emergency subjects were sent over the state. Sixty thousand enlistment blanks for volunteer food producers were distributed. An early report showed that 8,000 people signed up for gardening, 6,000 for actual farm work, 6,000 for canning, drying and preserving, 6,500 for home thrift and health conservation 4,000 for pork production, 5,800 for poultry production and a large number for selecting, testing and storing seeds.

The number of gardens planted in the cities showed an enormous increase. In Sioux City alone it is estimated that vegetables worth $200,000 will be raised on 8,537 gardens. With favorable weather, the state will produce enormous crops this year. At least an extra million acres of corn have been put in, which will yield not less than 34,000,000 bushels of that grain.

It is estimated that 40,000,000 quarts of canned foods will be put up by home canners, estimated to be worth $10,000,000. This is about 65 per cent more than the normal canning done in the state.

Among the subjects treated by the leaflets which were sent out are the control of rats and mice, corn and its use for human food, saving dairy products, producing more pork, using leftover foods, uses for sour milk, lessons in bread making, emergency meals at low cost, home preservation of eggs, and late vegetable crops for Iowa.

In a recent letter R. K. Bliss, director of the Agricultural Extension Department, gives the following account of the progress of the work:

"Labor bureaus have been organized by this department in practically every county in the state and the local needs for labor have been very well met. At present there are 20,000 enrolled in the Volunteer Food Producers' Association. This does not include, altogether, a large number of boys and girls who are enrolled in the club work and who are doing just as faithful work to increase food production.

"Beginning with May 25th, a statewide canning, drying and thrift campaign was started in this state. For this purpose we employed twenty-seven additional workers and furnished each county with a worker for two weeks. We are also furnishing each of the large cities with a worker for two weeks. We pay the salary and the local people pay the local expenses and arrange for twenty different demonstrations. To date the average attendance at these demonstrations has been between forty and fifty. We have therefore reached by definite demonstration methods more than 2,000 people daily for some time. At these meetings fruit and vegetables are actually canned and the processes in order to can them, known as the "cold-pack" method, are actually demonstrated. In addition, drying is explained and its methods are encouraged. Pamphlets are distributed giving definite instruction as to how to proceed. This canning campaign has attracted a great deal of attention and has been most effective in calling attention to the best way of increasing the available supply of foods, namely, saving what is already grown.

MEMBERSHIP CARD

SENIOR V.F.P. DIVISION

Make this a badge of patriotism

M____

In response to your request you have been enrolled as a

VOLUNTEER FOOD PRODUCER

"The supreme need of our own nation and of the nations with which we are co-operating is an abundance of supplies, and especially foodstuffs."

—President Wilson.

Wear This Button—Get Others to Volunteer
Encourage the Patriotism of Useful Service

ISSUED AT THE
IOWA STATE COLLEGE, AMES, IOWA, BY THE AGRICULTURAL
EXTENSION DEPARTMENT

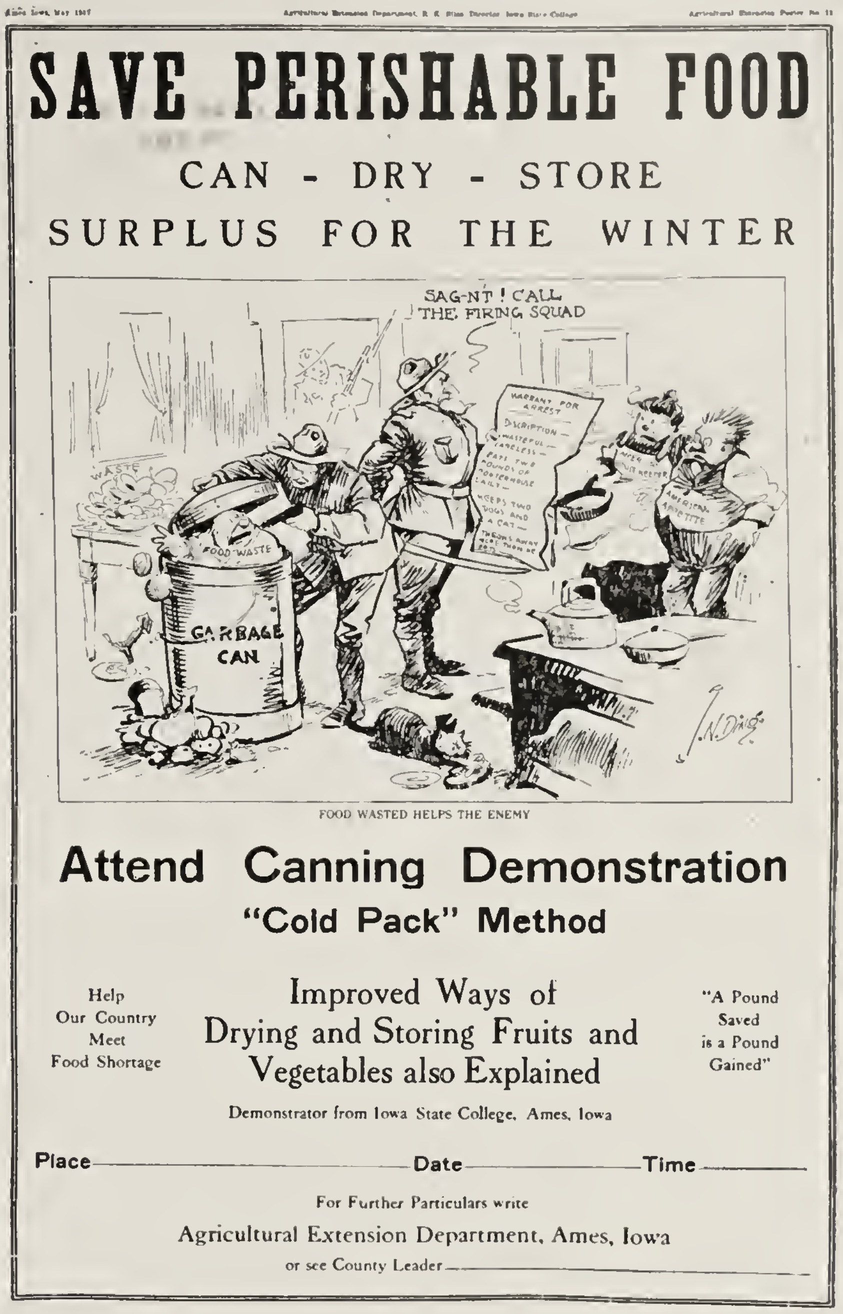
Date____________________1917 ______________________________
Enrolling Secretary

THIRTY-FIVE THOUSAND OF THESE CARDS WERE ISSUED.

"We are of course, conducting a publicity campaign in order to save fodder and roughages for live stock. I anticipate that the number of silos erected in this state this year will far exceed the number erected any previous year.

"Our county agents have been working industriously along their various lines and the number of agents have been largely increased. We are at present training a group of men who will later be county agents.

"We feel that the work has proceeded quite satisfactorily in this state."


SAG-NT! CALL THE FIRING SQUAD
WARRANT FOR ARREST
DISCRIPTION — WASTEFUL — CARELESS — EATS TWO POUNDS OF PORTERHOUSE DAILY — KEEPS TWO DOGS AND A CAT — THROWS AWAY MORE THAN HE EATS
WASTE
FOOD WASTE
GARBAGE CAN
AMERICAN APPETITE
J. N. Ding

Ames, Iowa, May 1917 Agricultural Extension Department, R. K. Bliss Director, Iowa State College Agricultural Extension Poster No. 11

SAVE PERISHABLE FOOD
CAN - DRY - STORE
SURPLUS FOR THE WINTER

FOOD WASTED HELPS THE ENEMY

Attend Canning Demonstration
"Cold Pack" Method

Help Our Country Meet Food Shortage

Improved Ways of
Drying and Storing Fruits and
Vegetables also Explained

"A Pound Saved is a Pound Gained"

Demonstrator from Iowa State College, Ames, Iowa

Place________________Date____________Time________

For Further Particulars write
Agricultural Extension Department, Ames, Iowa
or see County Leader________________

POSTER ADVERTISING CANNING DEMONSTRATION.

Massachusetts.

The following statement of the situation in Massachusetts is by Robert W. Neal of the Committee on Food Production and Conservation:

"At the close of June the Massachusetts State Food Production and Conservation Committee looks back on three months of exceedingly active and on the whole satisfactory work, and is preparing for the "follow-up" necessary to the best results from the increased planting of the spring, and for the new undertakings that the advance of the season makes timely.

"Of 354 cities and towns in the state, 325 have local food committees affiliated directly with the state organization. In several counties no community remains unorganized; in most of the others only a town or two did not respond. The local organizations have averaged much above the ordinary in their energy, initiative and persistence.

"The increase in small gardens has been very large. Many industrial and business firms have entered into co-operative gardening or garden promotion in association with their employes. Some communities are also cultivating land as a public project, although the legislative act authorizing taxation and the expenditure of public funds in promotion of agriculture could not be passed in time to make an extensive campaign advisable for municipal gardening undertakings. Advices indicate that a much higher percentage of amateur gardens are prospering than might have been expected, and no serious outbreaks of insects or fungous disease have taken place.

"There has also been an increase in acreage on farms, reported as varying from 5 to 25 per cent in different counties. In the main, if there is a scarcity of farm labor, it seems to result from the unwillingness of employers to meet the prevailing rate of wages. The surface demand early in the season sometimes dropped to one-quarter when farmers were actually offered laborers. The mobilization of high school boys for farm labor, although entirely an experiment, has overcome objections and grown steadily in favor."

"A few of the emergency matters that have given the committee concern are:

"A tendency to slaughter of dairy cattle, owing to the unsatisfactory price received for milk and the excessive price of feeds. This was checked but may renew itself when the pasturing season ends. In some parts of the state cows have risen in price $25 a head. A similar rush to sell off poultry flocks was also checked, the tide having been apparently turned to a larger production than ever. Grain embargoes and short stocks were an important part of this problem.

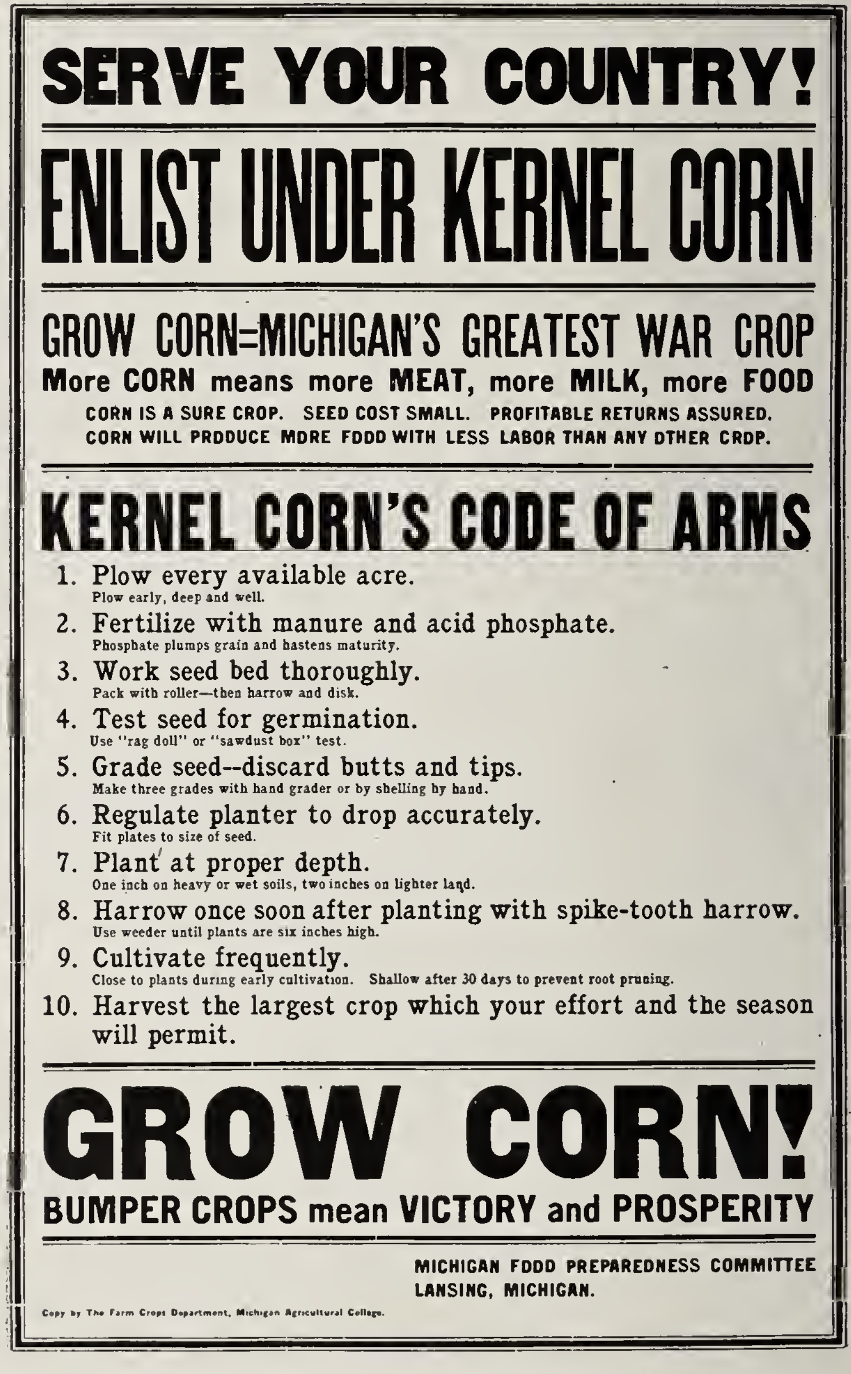
"A premature rush to buy cans threatened to boost prices skyward and seriously interfere with later canning and preserving activities. This was also prevented, and the committee confidently expects an adequate supply of containers as they are needed.

"Provision of seed and of fertilizer was often difficult. Financing of farm and garden operations required prompt attention, but was successfully accomplished. The banks co-operated extensively, some special funds were made available, and associations of business men in some localities "went partners" with the farmers on a 50-50 basis.

"At this time, the chief immediate problems before the committee are conservation of the crop surplus that is confidently expected above immediate market demands, not only to preserve the store of food but to prevent temporary gluttings of the market with inadequate prices to the producer, and a broad, effective system of marketing and distribution that will simplify transportation, finance storage and equalize supply and demand in both time and place as winter advances."

In the judgment of the committee, state work such as it has been concerned with should continue after the organization of the staff of the federal food administrator, with a close relationship between the federal and the state organizations. Continuance of the state committee is deemed advisable because of the probability that the food situation will still be acute next year, and that a systematized and experienced organization to deal with it will prove imperative. Looking forward to this situation, the committee is already considering the question of the planting of winter wheat in Massachusetts.

"The chairman of the food production committee—which is a branch of the Massachusetts Committee on Public Safety—is President Kenyon L. Butterfield of the Agricultural College; the executive secretary is John D. Willard, formerly head of the Franklin County Farm Bureau. It is interesting to note that under President Butterfield more than 97 per cent of the entire number of students in the college enlisted in national service, most of them in farm or garden work. The faculty were also mobilized and are devoting their time through the summer vacation to promoting food production and conservation. For the first time in fifty years there was no commencement, every senior being engaged in patriotic service."



SERVE YOUR COUNTRY!

ENLIST UNDER KERNEL CORN

GROW CORN=MICHIGAN'S GREATEST WAR CROP

More CORN means more MEAT, more MILK, more FOOD

CORN IS A SURE CROP. SEED COST SMALL. PROFITABLE RETURNS ASSURED.
CORN WILL PRODUCE MORE FOOD WITH LESS LABOR THAN ANY OTHER CROP.

KERNEL CORN'S CODE OF ARMS

1. Plow every available acre.
   Plow early, deep and well.
2. Fertilize with manure and acid phosphate.
   Phosphate plumps grain and hastens maturity.
3. Work seed bed thoroughly.
   Pack with roller—then harrow and disk.
4. Test seed for germination.
   Use "rag doll" or "sawdust box" test.
5. Grade seed--discard butts and tips.
   Make three grades with hand grader or by shelling by hand.
6. Regulate planter to drop accurately.
   Fit plates to size of seed.
7. Plant at proper depth.
   One inch on heavy or wet soils, two inches on lighter land.
8. Harrow once soon after planting with spike-tooth harrow.
   Use weeder until plants are six inches high.
9. Cultivate frequently.
   Close to plants during early cultivation. Shallow after 30 days to prevent root pruning.
10. Harvest the largest crop which your effort and the season will permit.

GROW CORN!

BUMPER CROPS mean VICTORY and PROSPERITY

MICHIGAN FOOD PREPAREDNESS COMMITTEE
LANSING, MICHIGAN.

Copy by The Farm Crops Department, Michigan Agricultural College.

POSTER USED IN EDUCATIONAL CAMPAIGN.

Michigan.

Murl H. Defoe, secretary of the Food Preparedness Committee of the War Preparedness Board, gives the following report of the work of his organization to the first of July:

"The Food Preparedness Committee of Michigan is the outcome of a statewide conference held at the executive office early in April at the suggestion of Governor Albert E. Sleeper.

"Men prominent and successful in every line of Michigan's diversified agricultural activities were present at this meeting and at the conclusion of the symposium, Governor Sleeper named Fred M. Warner, three times governor of Michigan, as chairman of the newly created committee. Mr. Warner is one of the leading dairymen of Michigan and has long been prominent in state and national dairy councils. The other members of the committee are: William J.

Orr, president Michigan Bean Jobbers' Association; Nathan F. Simpson, former warden of Michigan State Prison, head of the Gleaner Clearing House; George W. McCormick, beet sugar manufacturer; Nathan P. Hull former master of the Michigan State Grange, president of the Grange Life Insurance Company; William K. Prudden, manufacturer and banker; John S. Haggerty, president Michigan State Fair and farmer.

"The official status of the committee is derived from the War Preparedness Board created by an act of the 1917 legislature.

TO GET GREATEST POSSIBLE YIELD

FROM EVERY BUSHEL OF SEED POTATOES PLANTED

ENLIST UNDER

MAJOR SPUDS

1. Begin to stir surface soil as soon as potatoes are planted.

OBJECT: To kill weeds when small and to keep the soil moisture from escaping.
TOOLS: Use spike-tooth harrow on large areas and garden rake on small patches.
WHEN: Every few days until tops are too large. Three or four times at least. Small plants are not easily injured.

2. Start Cultivator as soon as rows can be seen easily.

HOW? First time deep and close. After first time shallow. Frequent cultivation important.

3. Get the BUGS before the BUGS get the PLANTS.

WHAT TO USE: Paris green, one-half to one pound to fifty gallons of water. For Large Areas---Arsenate of lead paste,three pounds or powdered one and one-half pounds to fifty gallons of water.

For Small Areas---Powdered arsenate of lead diluted with five to ten parts of hydrated lime or flour.

4. Insure the crop against attack of late blight.

WHY? Because late blight has reduced the yield of potatoes in Michigan 25 to 50 per cent. Such a loss this season would be DISASTROUS. An increase in yield of over 100 bushels per acre as the result of the use of Bordeaux is not uncommon.

WITH WHAT? BORDEAUX---A combination of Blue Vitriol (copper sulphate) four pounds, fresh stone or hydrated lime four pounds and fifty gallons of water. (If you do not know how to make Bordeaux get your County Agent to show you.)

WHEN? Make first application when necessary to spray for bugs. (The Bordeaux may be combined with the Paris Green or Arsenate of Lead.) Repeat the sprayings every ten days or two weeks through growing season. More spray needed during wet than dry weather.

MICHIGAN FOOD PREPAREDNESS COMMITTEE
LANSING, MICHIGAN.

Copy by Horticultural Department Michigan Agricultural College

THIS HELPED INCREASE MICHIGAN'S POTATO CROP.

"One of the early official acts of the Food Preparedness Committee was the adoption of a resolution calling for the appointment of sufficient county agents to cover the entire state with the service supplied by county agents. In all about forty county agents have been appointed under authority of this resolution. These appointments are for a period of six months but if the war should continue another year, it is probable the term of the appointment would be extended.

"The county agent, in addition to his regular work as suggested by the federal and state extension bureaus, is the official representative of the Food Preparedness Committee in his district—the middleman between the state and the farmer.

"The first sixty days of the committee's existence was given over to aiding the worthy farmer with limited credit, to get the necessary funds to buy his seed which has been almost prohibitive in price; locating the surplus seed stocks which were shipped from one section of the state to the other, the respective county agents acting in the same capacity as a clearing house in the transaction. Upon the suggestion and solicitation of the committee, several counties through their boards of supervisors appropriated sufficient money to take care of their own local needs, the farmers giving their notes for the cash or seed, payable to the county clerk, county agent or someone in authority. Alpena led the individual counties in this relief with a $10,000 appropriation. These obligations are due next fall and the paper does not draw interest.

"Almost without exception the bankers of Michigan have co-operated in every way, extending their banking facilities to the very limit to handle these crop loans. The state treasurer has deposited extra money in several northern Michigan banks that have loaned heavily of their working capital to accommodate deserving farm customers. Cases where the bank was entirely justified in refusing a loan were taken up individually by the committee and not a single applicant to the writer's knowledge was refused after the request had been considered by the committee.

"With the cropping out of the way, the question of labor took the center of the stage. In addition to the usual sources for locating help, the complete organization of the state free employment agencies was turned over to the committee. Labor Commissioner R. H. Fletcher detailed one of his most capable men to handle farm labor applications exclusively. Supplementing all this detail the committee by special arrangement with the Michigan Manufacturers' Association had a census made of all factory labor of the state with previous farm experience. The blanks for the purpose supplied the committee with the name, age, married or single, post office address when the man worked on a farm, and his own statement as to whether or not he would be willing to do farm work if called upon. Ninety per cent of the 15,000 factory men who formerly worked on Michigan farms, according to this survey, signified their willingness to enlist for farm service on call. The affirmative or positive blanks are tabulated and all the information is being furnished the county agents of the state in two forms. One list gives each agent the names of the men now employed in the factories of his county who will aid the farmer if emergency arises. The other list gives the names of every factory man who was at one time on a farm in that county. The last list has a peculiar value. The Detroit auto worker has more sentimental interest in the people and crops in his old home neighborhood and this list tells the county agent the locality where the former resident lived back in the days when he was a tiller of the soil. These lists were placed in the hands of the county agents July 1st and the expected value of the plan is already being demonstrated in a very gratifying way.

"With the labor problem solved and in operation, next comes the question of transportation, which looms large right now. The detail of this part of the program is now being worked out in conjunction with Mr. C. E. Webb, transportation expert and secretary of the Michigan Railroad Association, which has an office in the state house and has already given splendid service to shippers in the movement of seed and fertilizers.

"The people have demonstrated their patriotism in a practical way and the success of this food campaign, born of our vital need, is now in the balance, contingent on the usual hazards associated with agricultural endeavor. As this story is written reports from every section of both peninsulas indicate record crops and Michigan, according to Governor Sleeper, will enlist every resource at its command to take care of this loyal and bountiful response in Michigan men and Michigan soil in a patriotic effort to do her full part in this critical hour of our national life."

Minnesota.

The following report of the work of the State Committee on Food Production and Conservation is furnished by W. P. Kirkwood of the University of Minnesota Office of Publications:

"After the food committee was appointed, however, the legislature authorized the appointment of the Public Safety Commission and appropriated $1,000,000 to be used by that commission in carrying on its work. About half of this sum was used in paying off militia who had been on the Mexican frontier. The other half is being used to promote the work of public defense and crop production. The Public Safety Commission appointed a director for each county, and this modified the plan of the food committee, as the county directors have proceeded to organize the various counties on lines slightly different from those agreed upon by the food committee. Furthermore, the Public Safety Commission took over the work which the food committee had assigned to its sub-committee on labor. Again the national government in working out a scheme for food conservation has appointed a special representative to work among women. The work of the food committee, insofar as it concerns women and the conservation of food, is being correlated with the work of the government's state director on food conservation by women.

"The food committee upon appointment began a campaign through the farm press, the daily papers, and the country weeklies, to encourage larger crop production. It sought to interest the farmers in increasing their wheat acreage and corn areas, and the production of nonperishable crops which could be used for human food. It also encouraged very largely the planting of gardens by everyone having sufficient space. While it was late, the spring wheat area was no doubt considerably increased, possibly, about 10 per cent. The corn acreage has been increased 20 per cent. The farmers and gardeners of the state have planted very large areas of potatoes and the interest in beans has also been greatly increased. Flax growing has also been encouraged not only for this year's crop but as a means of getting larger areas of sod land into condition for grain crops next spring. Special efforts have been made to interest the farmers in the careful cultivation of their corn and potatoes as means of increasing these crops, and at present the crop committee is carrying on a campaign by which it is hoped to increase the number of silos in the state by 5,000, bringing it up to about 21,000 in all.

"At first the food committee had no funds with which to work. After the appointment of the Public Safety Commission, with which according to the governor's instructions, the food committee was associated, a small fund was obtained for publicity work, and this is now being used in distributing the news of the activities of the committee together with educational matter in the form of plate and copy to the country and farm press and other publications. The committee is also publishing bulletins and circular letters which are being sent out widely. We are just now issuing a bulletin on milk for human food, which will be sent to about 55,000 persons on our agricultural extension mailing list and to many others.

"We find the press very ready in its co-operation and the ideas and work of the committee have been brought to the attention of the people throughout the state through this co-operation."

Montana.

Charles D. Greenfield, commissioner of the Montana Department of Agriculture and Publicity, gives the following description of the State Council of Defense in its relation to food production:

"The Montana State Council of Defense consists of eight members, appointed by the governor, the latter acting as chairman. At the first meeting held April 18th, the following committees were named: Finance and Credit, Seed Information and Distribution, Economy and Utilization of Foods, Home Gardens, Federal Aid and Relations, Publicity, Mobilization of Youths, Labor, Fish Food, Animals and Animal Products.

"Shorty after the organization the governor appointed in each county a County Council of Defense, consisting of three members. The County Councils are composed of at least one banker, a business man and a farmer, but not in every case. In some instances there are two bankers and in others a newspaper man is put on. The effort was made to select men who were truly representative of their county and of the highest character.

"In forty-one of the forty-three counties in the state these County Councils have selected in each school district or each voting precinct some well known representative to act with them. In many cases the County Council directs or co-operates in such activities as the Red Cross chapters, works with the county authorities and the county agricultural agents. (The State Council of Defense has put in each county in the state an agricultural agent who works under the direction of the extension department of the State Agricultural College. In this work the state has been divided into seven districts, a member of the faculty of the college being in direct charge of the county agricultural agents in his district.)

"The first work assigned the County Councils was to help the farmers in the work of putting in bigger crops. Thousands of blanks were sent farmers in which they were asked to state what if any assistance they needed, if it was rendered. As the members of the County Council were in a position to act quickly and intelligently, and as they were interested, they handled the cases expeditiously. The result was that 95 per cent of the applications were acted upon favorably and help was given. The County Councils report regularly twice each month to the secretary of the State Council on agricultural conditions.

"The State Council of Defense had no appropriation with which to do any work. Governor Stewart, insofar as they could assist, put employes of the state in the harness and has utilized the facilities of the different departments in carrying on the work. The County Councils have in a number of instances raised a fund to carry on their work.

"The State Council meets on the call of the chairman. The work is directed and carried on by the chairman and secretary, and due to the personnel of the County Councils, satisfactory results have so far been achieved."

Mississippi.

Governor Theodore G. Bilbo of Mississippi writes as follows: "Our State Council of Defense is purely a voluntary patriotic organization, not authorized by legislative act and not provided with the funds necessary to conduct this organization as it should be. The efforts of the State Council of Defense have been to induce farmers to avoid unnecessary waste and to plant those crops that will produce food for fall and winter use."

Nebraska.

George Coupland, head of the Department of Food Conservation of the Nebraska State Council of Defence, says:

Our State Council has taken up the question of increasing the production, and through the county councils which have been organized, through the State and University Departments, especially the Agricultural College and Extension Service, we have carried on a successful and effective campaign, reaching out into the several precincts of the state.

One of our very serious problems is the question of securing the planting of the normal acreage of winter wheat this next fall. Unfortunately, we lost about three million acres of our last fall's planting. Two million of this has gone into corn and one million into oats and other crops.

Some of our best wheat-producing counties will raise none this year, and the question of providing seed for them is a most important one.

We have succeeded in co-ordinating all our agricultural and milling and distributing and conservation agencies in such a way that I think that we are going to handle the problem successfully. It is of very great importance to ourselves and to the nation—in fact, to the world—that we have every acre of wheat planted this fall that it is possible to get.

The question of conserving our stocks has been taken up by the several county councils, which are using all of the activities of the state looking toward the making efficient of Nebraska's contribution to the nation.

Our potato crop is going to be immense, and this is one of the problems that we are hoping to handle satisfactorily, its harvest and distribution, and particularly are we anxious that the greedy men shall not be permitted to exploit the needy in the handling of this commodity.

Nebraska is alive to the nation's situation and is very anxious to contribute its effort and result in this time of our country's need.

New Jersey.

The movement to enlist high school boys and girls in the food conservation movement was taken up enthusiastically in New Jersey and met with considerable success. The plan of organization at Barnardsville is typical of that which is meeting with the most favor. Fifty high school boys, recruited from East Orange, West Orange, Bloomfield and Union County, were quartered in the Bernards High School building. Cooking apparatus was installed and changes costing $675 were made to change assembly room into a dormitory, and the basement into a dining room and kitchen. The boys are sent to the farmers for from one day to a week, as their services are needed. They are paid $20 a month and their board. The farmer pays $1.80 a day for each day's services to the director of the Boys' Helping Colony. The boys sign a pledge to devote themselves to the service of the state and nation and to do such work and in such places as may be assigned to them, continuously from June 1st to the end of the harvest season (approximately October 1st). Girls' battalions, along similar lines, are organized for home canning and drying.

New York.

The New York State Food Supply Commission consists of nine members, each of which is in charge of a division of the work. The division of General Administration is in charge of Charles S. Wilson, chairman, and commissioner of agriculture. This division supervises all the work of the commission, issues reports, nightly bulletins and sends out a weekly circular, the "Announcer."

The division of Food Conservation, in charge of A. R. Mann, dean of the State College of Agriculture, is organizing a statewide campaign for conservation both in city and country homes.

The division of County Organization is in charge of M. C. Burrit, director of Farm Bureaus. This division advises the farmers as to the best methods of increasing production. In forty-one counties farm bureaus were already in existence. In the other fifteen, county representatives were appointed to carry on the work. Effective work has been done in the distribution of seeds and an agricultural census is being taken in co-operation with the school system.

The division of Schools and Colleges is under the direction of J. H. Finley, Commissioner of Education. Its principal work is the securing of boys and girls to assist the farmers in harvesting and caring for their crops.

The division of Distribution, Storage and Markets is in charge of John J. Dillon, State Commissioner of Foods and Markets. It is making a survey of the canning, drying and evaporating plants of the state and of cold storage and common storage warehouses so that all facilities may be used to the best advantage. It is proposed to operate one or more dehydrating plants. Correct information regarding market receipts will be circulated, and every effort will be made to aid the growers in marketing their produce to the best advantage.

The division of Loans and Farm Lands, in charge of Sherman J. Lowell, master of the New York State Grange has co-operated with the Patriotic Farm Loan Fund by securing the appointment of a committee of each local grange to pass on applications for loans. It has investigated numerous farms which have been offered to the commission for use, as well as those that belong to the state through failure to pay taxes, and have endeavored to have them cultivated by local farmers or persons seeking farming land.

The division of Farm Labor, in charge of F. W. Sessions, president of the New York State Agricultural Society, has listed men working in cities who have agricultural experience and are willing to [illegible] on farms. Several hundred men have been furnished to farmers needing them.

The division of Seeds, Fertilizer and Live Stock, in charge of R. D. Cooper, president of the New York State Dairymen's League, has distributed 10,000 bushels of buckwheat seed and is endeavoring to lower the prices of stock foods and secure an adequate supply of fertilizer.

The division of Transportation and Machinery, in charge of S. J. T. Bush, president of the Western New York Horticultural Society, is expediting shipments of farm machinery, seeds and fertilizers. Farm tractors have been purchased, and three tractor-ditchers for tilling wet land are being used to determine the practicability of increasing the tillage acreage by their means. Tractor sprayers for potato spraying have also been purchased.

North Carolina.

Beside a large amount of educational material sent out to the newspapers and the farmers in co-operation with the State Agricultural College, the North Carolina Conservation Commission, of which John Paul Lucas is executive secretary, has made a particular appeal to various classes to help in special ways. Normally North Carolina imports $80,000,000 worth of food from the North and West, and this is to be diminished by increasing the acreage planted to grain and reducing the acreage in cotton and tobacco.

The Boards of County Commissioners have been notified that the county homes report a total acreage of 15,000, only 4,000 of which is cultivated. With all due allowance for pasturage and woodland, the commission believes that enough additional can be brought under cultivation to feed all the inmates of the county homes and urges that this be done. The farm demonstration agents are urged to see that the Boards of County Commissioners take action to use their road forces in cultivating vacant and tenantless farms. The ministers of the state were asked to call on their congregations to plant foods instead of cotton and tobacco, and to have the housewives exercise economy in buying and using food. The mayors of all towns were asked to see that the vagrancy act is strictly enforced so that any loafers can be put to work in the fields. They were also requested to see that every available vacant lot in or near the city is planted. The commercial organizations were especially requested to aid in establishing proper market facilities so that the farmers will be able to dispose of the grain and food crops that they raise.

The canning club movement, which originated in North Carolina, had 7,000 members last year compared to 15,000 this year, and will probably result in a pack of nearly 2,000,000 cans of food.

North Dakota.

The Efficiency Commission, of which Oscar J. Seiler is secretary, was appointed too late this year to materially affect the area planted to crops. Private individuals and various organizations, however, had taken up this work and accomplished considerable results. There is no question that the farmers have planted sufficient acreage to insure a bumper crop if weather conditions are favorable. The main problem now is to insure sufficient farm labor. The plan for securing farm labor is similar to that adopted in most of the other states and is being carried out with the co-operation of the United States Department of Agriculture, Bureau of Farm Management. The organization consists of two federal men, who have charge of the state, a committee of three in each county, one man in each township, and city organizations which are handled through the commercial clubs. There was no adequate appropriation for the work and it is being done on a gratuitous basis.

Oregon.

In Oregon the food campaign organization is in charge of W. J. Kerr, president of the Oregon Agricultural College, and is being carried on largely by that institution. In response to a request for information as to the work being done, Dr. Kerr writes:

"This work is carried on through our extension service organization. We are also using all members of the college faculty to the extent possible. Various other agencies throughout the state are co-operating. The plan is working very satisfactorily. I do not know of any change that could be made to advantage.

"In this state the entire food campaign, including farm labor, has been placed in our charge. Early in April there was a conference in Portland of representatives of some thirty-odd different organizations throughout the state, including farm organizations such as the State Grange, Farmers' Union, Oregon Patriotic Service League, Portland Chamber of Commerce, Oregon Development League, Pure Bred Live Stock Association, State Dairymen's Association, etc. There were also present the state dairy and food commissioner, state commissioner of labor, and representatives of a number of the largest dealers in food products, and the presidents or other representatives of the three principal railway companies. After the whole situation had been carefully canvassed, a committee was appointed by this conference, consisting of one representative of each of the thirty-odd organizations and a resolution was adopted by this committee placing the entire food campaign in my hands and pledging the support of all the organizations represented. The object was to co-ordinate all the work of the various organizations, thereby utilizing all forces available to the best possible advantage.

"I immediately appointed a committee consisting of a number of the most prominent and capable men representing various interests, such as the master of the State Grange, president of the Farmers' Union, president of the State Federation of Labor, president of the Portland Chamber of Commerce and Oregon Development League, president of the Oregon Patriotic Service League. A week later the governor appointed a State Council of Defense, and at the first meeting of the members of the council the work that had been done by the Portland conference mentioned above was recognized by the appointment of the same committee, with myself as chairman, to take charge of the food campaign, including farm labor.

"We had already made certain readjustments at the Agricultural College that our organization and staff might be used most effectively in the war emergency campaign. The various other organizations placed themselves at once under our direction and are all working harmoniously and effectively. To handle the home gardening and labor problem in Portland, an office was opened in that city and will be maintained throughout the campaign. The Portland publicity campaign and the school garden and home garden work of that city have all been handled directly through the Portland office under the general supervision of specialists at the college. The Portland Board of Education authorized the employment of five people and paid the salaries thereof to assist in the garden campaign. The city was organized into districts, each high school being used as a center from which to work. Various individuals volunteered their services, and the different organizations in Portland all co-operated in various ways in this campaign.

"The most effective work generally throughout the state is done by the county and district agents, with the co-operation of the county agricultural farm bureaus or councils of defense and the city committees. The work in the different counties is under the immediate direction of these agents, with whom different organizations and individuals interested co-operate.

"We had regular county and agricultural agents in fourteen counties with six assistants. In order that work in other counties might be similarly organized and properly directed, we took a number of our field specialists in the extension service of the college and placed each in charge temporarily of one or more counties. The Farm Bureau, or Agricultural Council of Defense, is organized in all counties of the state. We have altogether county agents and district agents working in twenty-seven of the thirty-five counties of the state. As soon as Congress passes the food measure and the money provided in this act become available, we expect to extend this organization, having an agent in each of the counties of the state, with two exceptions, in which we have one agent in charge of two counties. A number of women also will be employed in the different counties, doing work similar to that of the county agriculturists, except that their work will be with the women. The boys' and girls' club work is also very effective in this campaign, particularly in the cities and towns.

Tennessee.

Harry B. Potter, secretary of the State Committee on Public Safety in Food Preparedness, gives the following account of the work of that committee:

"Farmers in Tennessee responded quickly to the call for increased acreages and increased yields of crops, particularly the staple crops, such as corn, beans, peas, potatoes, and the like.

"On April 11th a conference, consisting of representatives of all of the various interests of Tennessee and from every part of the state, met at Nashville for the purpose of discussing the food situation. At that time an organization was perfected, having as its primary object the increasing of food for man and feed for beast. Several weeks after this state committee was organized, the State Council of Defense came into existence at the request of the National Council of Defense, and the food preparedness work became a part of the work of the State Council of Defense, of which Mr. Rutledge Smith is chairman.

At this time practically every county in the state has been touched by close county and community organization. The general plan of this organization is represented in Publication No. 36 and Publication No. 38.

"From this organization the State Committee on Public Safety in Food Preparedness has received reports from farmers as to their needs, and as to the supplies which they have available for others. This information is now being tabulated, but a great deal of the benefit is expected because of the fact that each community worked upon its own problems, studied its own situation and drew its own conclusions before reporting to the county committee. The county committee, in return, considered each community and tabulated its county reports from these community reports. This is already showing splendid returns in the interest which the county committees are taking in the results. In counties, for example, where labor was considered short, it has been found, as a result of these reports, that in some cases labor has been plentiful in the field; that is just as plentiful as the farm homes could accommodate in lodging and feeding. In some communities, where it was supposed a shortage of soy bean seed existed, enough soy bean seed was discovered to accommodate the particular community. The state, as a whole, however, had only a part of the soy bean seed that was needed to seed the acreage available.

"A great deal of the responsibility for the work that has been done has fallen upon the county chairmen and upon the county agents, where the counties have had agents. As a result of the support of these officers, the statistical work so far conducted has been very successful. The exact reports, however, are not available at this time, due to the fact that not all of them have been received, and consequently no complete tabulation has been made."

Texas.

Food conservation in Texas is directly under the charge of the Food Supply and Conservation Committee of the State Council of Defense of which Frank Kell is chairman. Judge O. E. Dunlap, chairman of the Council of Defense, writes: "Our state has been very well organized for purposes of food production and conservation. There are a number of independent organizations in our state that are working along these lines. The Chamber of Commerce at Fort Worth, Mr. G. G. Gunn, manager, has organized forty-eight counties. Hon. Clarence Ousley of the Agricultural and Mechanical College of Texas and his corps of assistants co-operate with the State Council of Defense in the work."

Virginia.

B. C. Moomaw, Jr., secretary of the Virginia Agricultural Council of Safety, gives the following account of the work of his organization in Virginia:

"Our council is composed of the different agricultural and educational departments of the state, and these departments have a force of nearly 200 field men and women who are working continuously to put into operation the plans of our council.

"We have county councils organized in about eighty-five of the one hundred counties in the state and the majority of these councils are organized down to magisterial districts or townships. A statewide speaking campaign has been put into effect to arouse the interest of the people as to the necessity for increasing their food production and for the elimination of waste of food on the farm and in the home; also for conservation by canning, drying and storing all the food that is possible for this winter's use.

"We carried on in the beginning of our work a definite campaign for the increased planting of food crops such as corn, beans, potatoes and the like, and for a reduction in the acreage of so-called cash crops such as tobacco. As a result, our increased acreage in corn amounts to 25 per cent above what it has ever been before. Planting of potatoes will average an increase of 75 per cent beans 100 per cent, and with an extensive increase also in the planting of forage crops of all kinds.

"We are now urging the extensive planting of soy beans, cow peas, buckwheat, and are urging a definite campaign for increased pork and poultry production in each county in the state. We are just beginning to put on an extensive campaign for an increased acreage of wheat this fall, and have already secured some very gratifying results.

"I wish to say that the farmers of this state are responding splendidly to the call of the government and are working up to the extreme limit of their ability in this matter. We have also been able to secure the co-operation of the banks in financing farmers for productive purposes, such as the purchase of seed, labor, farm machinery, fertilizer, containers, and the like, which has greatly increased their ability to produce foodstuffs.

"We have also secured the active co-operation of the Boy Scout organization of the state to handle the Boy Scouts and school boys of our larger cities in the work of assisting in the harvesting of such crops as potatoes, tomatoes, apples and the like, where the work is of such a nature that a large number of boys can be used in central camps and from which they may be working in squads. Arrangements are now being made to take 1,000 boys to the eastern shore of Virginia to harvest the potato crop, which has grown so extensively in that section. It is believed that the work these boys will do will amount to a considerable saving since the labor situation is so serious, and it is probable that this food will go to waste except for the assistanec of the boys in this connection."

The Food Official and the Grocer*

By John B. Newman, Food Commissioner of Illinois

THE brains of your organization are consulting as how best to perpetuate your business and safeguard your present enormous investments. And you know better than anyone else how much your future success depends on a large supply of foods and at reasonable prices, honestly labeled, with fair dealings among yourselves, with the consumer and with the control agencies. No firm can withstand the repudiation of its wares by the public or prosecution by the officials. It is therefore right and fitting that men so largely interested in foods and the feeding of our public should meet more often than you do with food control officials, that you may work out together the many problems that need attention.

During my connection with the Illinois Food Department it has been my pleasure to have enjoyed the co-operation and good will of the wholesale grocers of Illinois. I have come to recognize your ideal to be one of service and practical helpfulness in administering to the food requirements of the human family. In war or in peace the industries that have to do with food are those of the greatest concern; the existence of all other activities is subservient to the food business. The health of the people depends upon the way they are nourished. The prosperity of our country is but a reflection of the vigor of its citizens.

The present-day food official looks upon his position as an opportunity to be of help to the manufacturers and distributors as well as to the consumers. The greater co-operation that today is enjoyed between food officials and representatives of the food industries is one of the best signs of the times. We have come to know each other and to reason from a broader standpoint. Most all of us would much rather reason for half an hour or so to a number of milkmen or canners or representatives of wholesale grocers than to go into court and seek through compulsion to have those things done which we have recommended.

In order to do the most good it is most always a pretty safe plan to learn how much you can accomplish by co-operation first. This is what we have tried to do in our work in the Illinois Food Department, and I am very happy to have this opportunity to say to you that we have always found the members of the Wholesale Grocers' Association prompt to render corrective service when their attention was called to undesirable food conditions. To illustrate this point I shall refer briefly to the way in which the nut-picking industry was cleaned up in Chicago last fall.

A year ago it was brought to the attention of our department that shelled nuts were being handled under unsatisfactory conditions. A good deal of the work was farmed out; that is, women and children performed the work in their homes. This was often done in dark, ill-ventilated tenements or in damp cellars where sanitary conditions were bad. The owners of factories where proper conditions prevailed, as well as ourselves, were anxious that the needed changes should be made. However, the attitude of many owners who were accustomed to farm out the work was antagonistic.

It was then that we called the matter to the attention of you gentlemen, and, as a result of your ready response, we were enabled to put Chicago's nut-picking industry on an efficient and sanitary basis. This was through your instructions to your buyers to buy goods only from clean, sanitary factories, and of the Illinois men, if they would comply, and, as a result, the opposition we at first encountered quickly gave way. I think I can safely say that the food business in Illinois, as a whole, is conducted according to the best standards in the country.

Illinois leads the country in the production of many varieties of foods and food products with which you are familiar. Chicago is the largest cold storage center and the greatest distributing point in the world. In Illinois we have conformance to the highest standards, both in the composition of food products and sanitary conditions, under which they are produced and handled. So we take just pride in this fact as well as the state's supremacy in the volume of transactions. Quality with quantity.

I say, without fear of contradiction, that this is due in a very large measure to the untiring efforts of the members of the National Wholesale Grocers' Association, and to their willingness to do at all times that which will revert to the benefit of the people of the state. It is a most noteworthy example of the good that may be done in a community by the members of an organization founded upon sound principles, embued with worthy motives and actuated by a desire to be of real public benefit.

After eight years' experience in this department, the best that I could wish Mr. Hoover or any other state control official would be that he or they might have from the National Wholesale Grocers' Association as full, honest and complete co-operation as I have had at all times from the Illinois branch of your national association.

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*Speech before the Liberty Convention of the National Wholesale Grocers' Association.

Commercial Dehydration

By The Editor

UNDOUBTEDLY the earliest method of carrying over from periods of great abundance to periods of scarcity products of the field and orchard was that of drying. The principle of evaporating moisture from foodstuffs was made use of long before the first canned goods came into existence. In this country the American Indians provided for their commisariat by laying in a stock of pemmican, which is nothing but dehydrated beef, before starting on a forced march. The familiar raisin, which is a dehydrated grape, has been long with us and enjoys a well-earned reputation for wholesomeness, keeping qualities and other properties of value in determining the worth of foodstuffs.

Drying, desiccation, dehydration, or any other word meaning the same thing, simply consists in removing the water and nothing else from a product. In the case of food the value of the finished product depends upon a number of factors not of importance in the case of nonedible products. It is simple enough to drive the moisture from most articles if no attention is to be given to physical appearance, taste or odor. As is well known, the expulsion of moisture from an article depends upon the physical reaction known as evaporation, which in turn depends upon temperature and the relative humidity of the enveloping atmosphere. Fairly high heat will bring about evaporation even in a stagnant atmosphere, and on the other hand, moving air will bring about evaporation even at a fairly low temperature. As might be assumed, a combination of moderate heat and moving air is the most effective.

Commercial dehydration is based upon three general methods of operation, namely, heat from the sun, artificial heat and the air blast, with many combinations of these basic methods. Undoubtedly the simplest form of dehydrating food products is that still employed with apricots, raisins, and other fruits in which the product to be treated is placed on trays in the sunshine and evaporation brought about by the radiant energy of the sun and the gentle breezes of a midsummer day. Naturally this method of procedure is interfered with sadly if a rainstorm happens to blow up. Dust and the eggs of certain insects are causes of contamination which must be guarded against. As an offset to these unfavorable factors of sun drying are to be borne in mind the excellent color and flavor generally possessed by foods dried in this fashion.

By using a steady blast of cool air food products may be and are dehydrated although the process is a somewhat slow one. Here again color and flavor are excellent, and if the operation is carried out in sanitary quarters, dirt and the eggs of undesirable animal life are absent.

Until very recently the most generally used method of dehydrating food products was that of subjecting them to a current of hot, dry air, the general assumption having been that the drier the air the more rapid would be the progress of the action. Ordinarily the first process in dehydrating is that of removing from the air as much of the moisture as is possible. This is generally done by condensation, the air being passed over the chilled pipes of a refrigerating unit, which action causes the moisture contained in the air to condense as drops of water on the cold pipes. The air thus dried is then heated to about 65° C. (150° F.) and is forced by fans through the trays upon which is placed the food to be dried. There are certain objections to this method, notable among which are those of a dissipation of the delicate flavors of certain fruits and vegetables. The treatment is rather heroic for certain types of food, some of which leave the dehydrator in a partially cooked condition. At times the effect of the hot air blast is to sear the surface of the product with a comparatively impervious layer before all moisture has been extracted from the interior parts of the product.

Of late this time-honored process has apparently been improved upon. As the photographs accompanying this article indicate, it is possible to remove the

FOODS BEFORE AND AFTER DEHYDRATION.

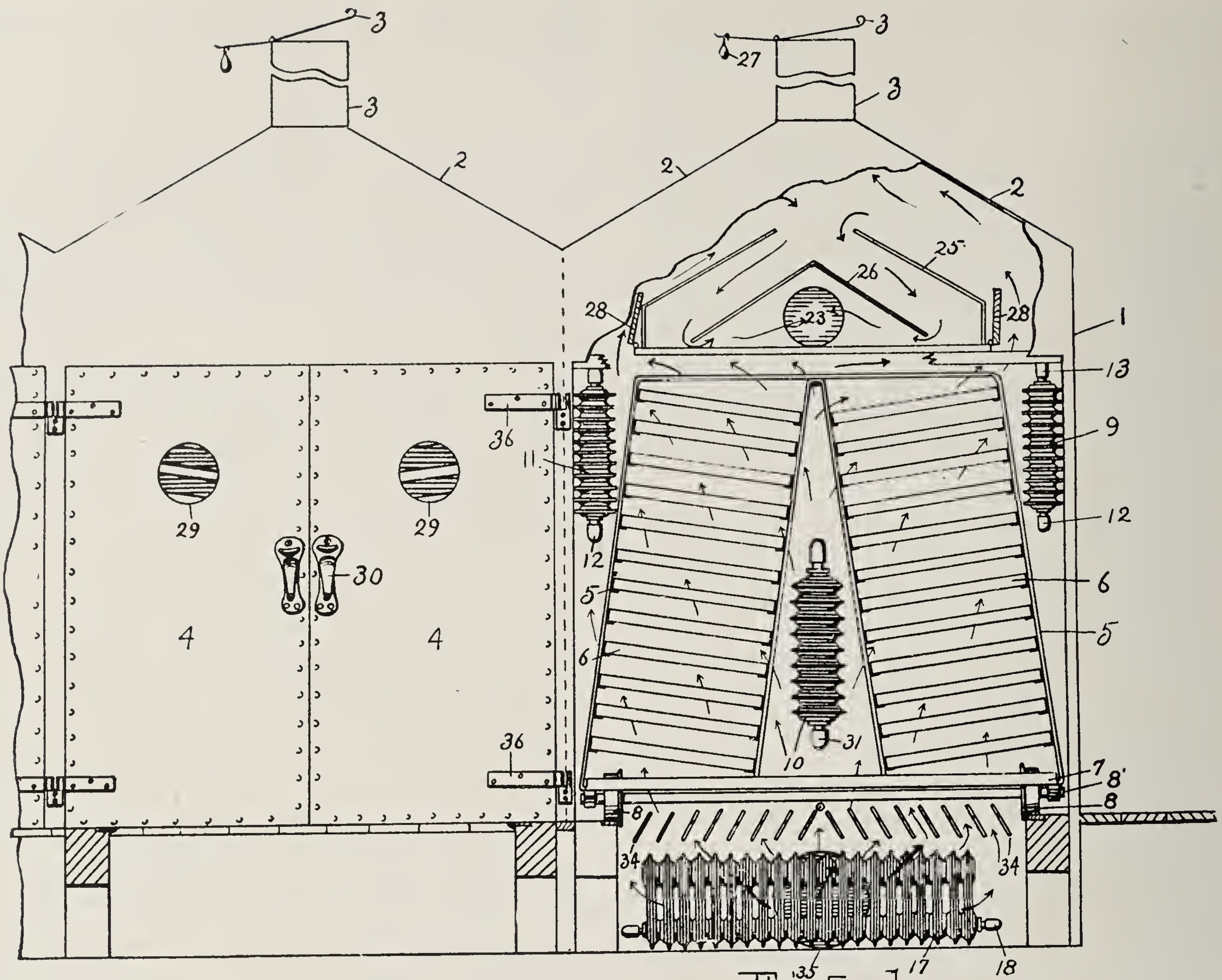


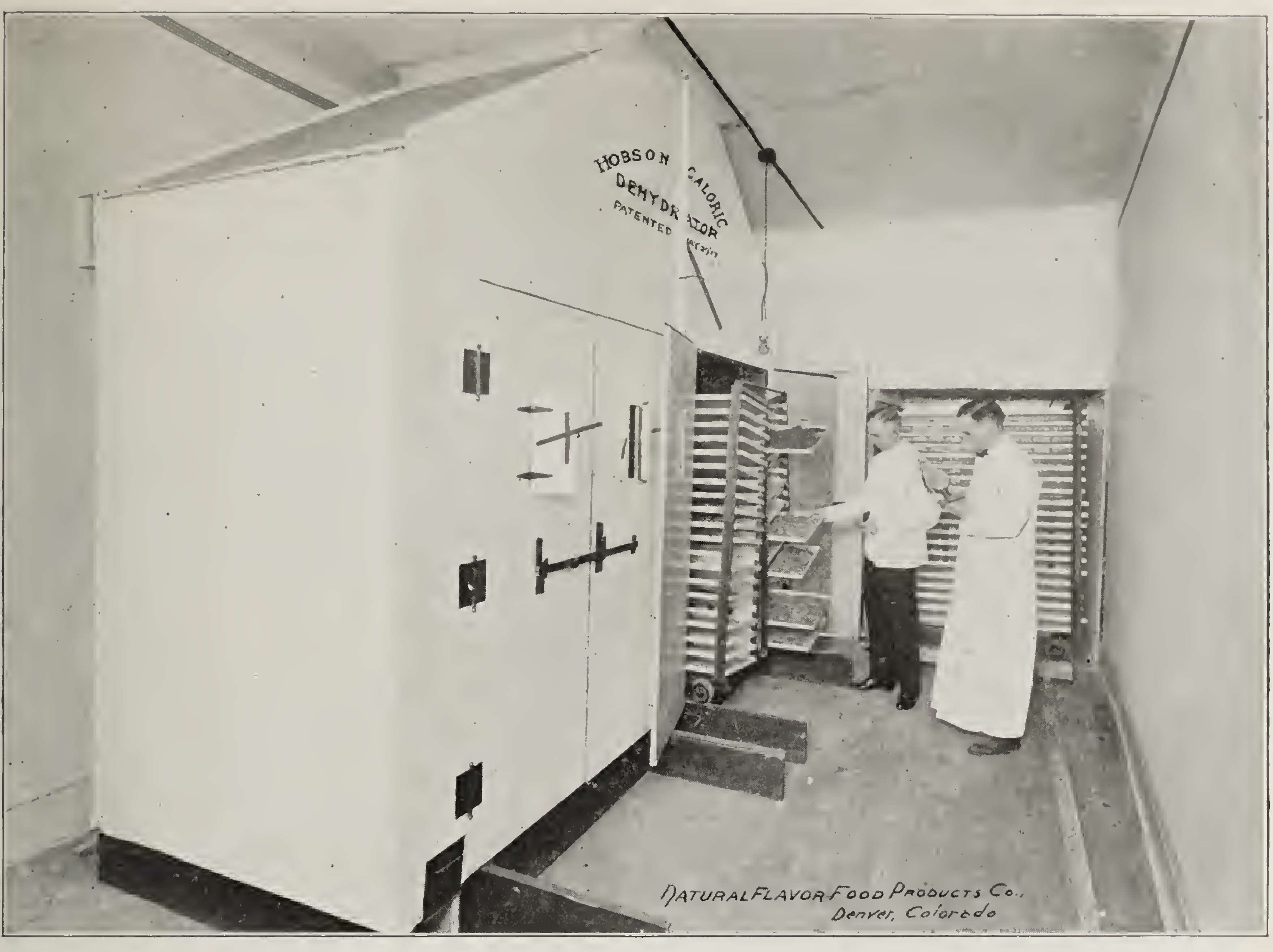
Fig. 1

DIAGRAM SHOWING CONSTRUCTION AND OPERATION OF DEHYDRATOR.

moisture from certain food products in such manner as to permit, by the simple addition of water, of bringing back the dehydrated products to approximately their original condition. This new method is also claimed to dissipate but little if any of the delicate flavor of fruits and vegetables, and indeed it is difficult to distinguish a revivified product dehydrated by this new system from the original fruit or vegetable.

This system of dehydration has several points of scientific interest. There are three ways of applying heat to a body, these ordinarily being defined as conduction, convection and radiation. The iron poker, one end of which is in the fire blazing on the hearth, is heated by conduction. The various rooms of the house are heated by convection currents of warm air set in circulation by the fire in the grate. When we stand in front of the fire for a time our body becomes heated, not by conduction nor by convection, but by the heat which radiates from the fire and before long we are warmer than is the air between us and the source of the heat. This is due to the fact that air permits passage of the rays of radiant heat without absorbing it. And especially is this true of dry air. Rays of radiant heat are of the same family as light waves, being generally considered to be of considerably greater length than the ray which emits red light. Such rays pass through glass or in turn can be reflected by a mirrored surface in very much the same manner as is possible with light rays. They can to a certain extent be driven through a fog and here we come to the secret of the Hobson system of hydration, the one upon which this article is based.

In an attempt to overcome the objections to present methods of dehydration, Messrs. Otto Q. Beckworth and Oliver T. Hobson conceived the idea of transmitting heat to the products under treatment by means of radiation but at the same time keeping the product bathed in a medium of warm air slightly cooler than the products and of the proper degree of humidity to absorb moisture from the product at a rate in keeping with its moisture content. Thus, instead of subjecting the product to a current of dry, hot air, it is subjected to heat rays radiating from hot side walls of an oven which rays are at the outset of the operation forced through a constantly moving enveloping medium of moist air which serves at one and the same time to remove moisture from the product and to protect it from too rapid evaporation. In other words, the product is made to "sweat," the perspiration being removed as fast as it is formed by the application of a moist towel, the moist towel in this case being the current of damp air. As the drying process proceeds the current of air, which is forced through the drying compartment by means of blowers, becomes constantly less humid, the excess moisture being removed by appropriate drying apparatus and the later stages of the dehydrating process are conducted in an atmosphere that is practically moisture free.



THE HOBSON CALORIC DEHYDRATOR IN OPERATION IN DENVER.

The object obtained in this method of dehydration is the doing away with the possibility of surface drying before the moisture in the interior of a product has had a chance to work its way out by capillarity and in turn be vaporized by heat and removed by evaporation. All conditions which affect the process are controlled rigidly and as called for by heat and moisture measuring instruments of precision. The heat comes from steam coils placed in the side walls of the drying chamber and the current of air discussed above is blown through perforations in the floor, being removed from the apex of the roof of the drying compartments by revolving fans, the same air current being used repeatedly during the process in order to economize in cost of operation.

The photograph accompanying this article indicates some of the many products now being dehydrated by this system. The process is by no means limited to this list and indeed not long ago a delicious short-cake was made of loganberries which were received in practically water-free condition. The delicate flavor peculiar to the loganberry seemed to have been preserved without loss and probably old General Logan himself would have thought he was being served berries fresh from the field.

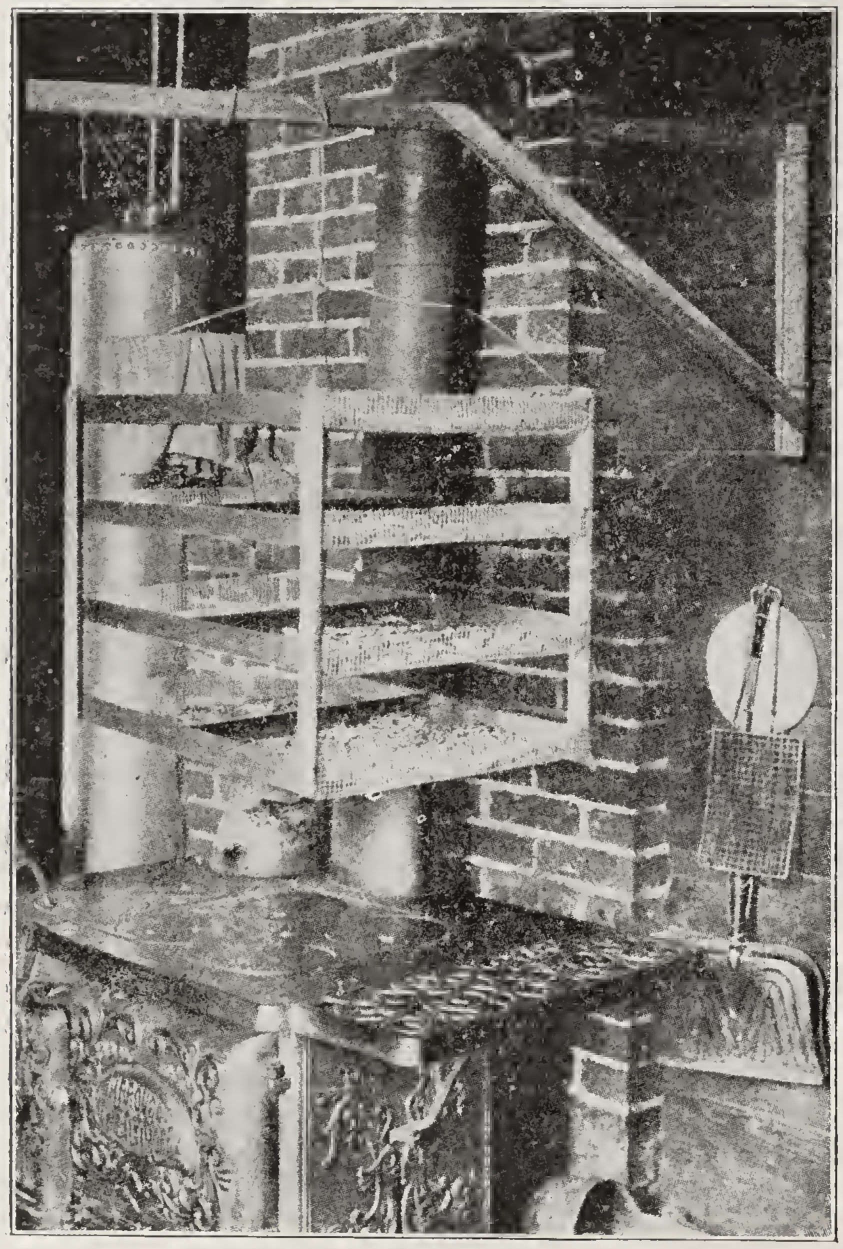
Economically there are many arguments in favor of dehydration. As fruits and vegetables are from 60 to 90 per cent moisture, the gain in bulk by submitting the products of the field to dehydration before shipping them long distances is obvious; also well-dried food products, while undeniably hygroscopic, can easily be kept in good condition for long periods of time. Should an active industry be built up in dehydrated foodstuffs it would serve to supplement the already established industry of commercial canning and would undeniably have a tendency to conserve for use much high-priced food which is at present not available for the commercial canner. In all large centers where fruits and green vegetables are handled the matter of spoilage could easily be obviated by the installation of dehydrating outfits. The loss due to spoilage is a very considerable item, as is clearly indicated by Mr. Isaac Russell's article in this issue entitled "Food Wastage in New York." If all large cities made a point of dehydrating fruits and vegetables as soon as they reach the point at which deterioration commences and before that process has been allowed to make any serious inroads into the quality of the products the problem of food spoilage would soon be at least partly solved.

Venezuela Needs American Corn Mills.

Inquiries to the American Consular Service from Venezuela and Trinidad ask for prices on corn mills, also suitable for grinding dasheens. A very large acreage of corn has been planted in these countries and present facilities are not sufficient to handle the crop. The dasheen has long been one of their staple crops

The Home Drying of Vegetables and Fruits

ONE of the most prominent features of the food conservation program of European countries has been the universal drying of fruits and vegetables. The surplus vegetables in the city markets were forced by the governments into large municipal drying plants. Community driers were established in the trucking regions and even itinerant drying machines were sent from farm to farm drying the vegeables which otherwise would have gone to waste. In addition, large quantities of dried vegetables from Canada and this country were shipped to France during the last two years, and there is a possibility that dried fruits and vegetables may continue to be shipped abroad in considerable quantities to supplement the concentrated food diet of the men in the trenches.



HOME-MADE DRYING TRAYS.

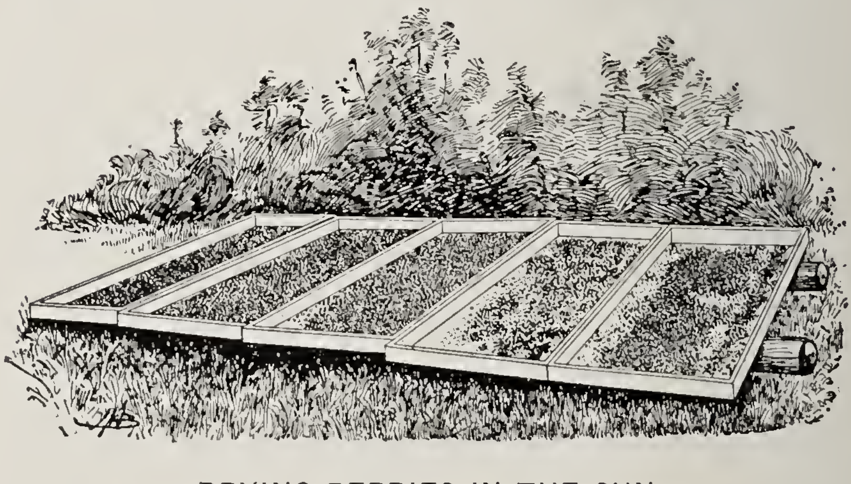
The drying of vegetables may seem strange to the present generation, but to our grandmothers it was no novelty. Many housewives even today prefer dried sweet corn to the product canned by the old method, and say also that dried pumpkin and squash are excellent for pie making. Snap beans often are strung on threads and dried above the stove. Cherries and raspberries still are dried on bits of bark for use instead of raisins. In fact, many of the everyday foodstuffs already are dried at some stage of their preparation for market. The common dried fruits, such as prunes, raisins, figs, dates and apples, are staples in the world's markets, while beans and other legumes, tea, coffee, cocoa and various manufactured foods like starch, tapioca, macaroni, etc., are dried either in the sun and wind or in specially constructed driers.

Even though the drying of fruits and vegetables as practiced a few decades ago on many farms has become practically a "lost art," the present food situation doubtless will cause a marked stimulation of drying as a means of conserving the food supply. This country is producing large quantities of perishable foods this year, which should be saved for storage, canned, or properly dried. Drying is not a panacea for the entire waste evil, nor should it take the place of storing or canning to any considerable extent where proper storage facilities are available or tin cans or glass jars can be obtained readily and at a low cost.

The advantages of drying vegetables are not so apparent for the farm home as they are for the town or city household, which has no root cellar or other place in which to store fresh vegetables. For the farmer's wife the new methods of canning probably will be better than sun drying, which requires a somewhat longer time. But shorter methods of drying are available, and the dried product holds an advantage in that usually it requires fewer jars, cans or other containers than do canned fruits or vegetables; also dried material can be stored in receptacles which cannot be used for canning. Then, too, canned fruit and vegetables freeze and cannot be shipped as conveniently in winter. Dried vegetables can be compacted and shipped with a minimum of risk.

To the housewife in the town the drying of vegetables and fruits presents special advantages. During the season when the market is oversupplied locally and prices are low she can lay in a stock, dry it, and put it away for a winter's emergency without its taking up much of the needed small storage space in her home. If she is accustomed to canning her fruit and vegetables and finds she cannot secure jars or tin cans, she can easily resort to drying.

And now we are told to dry vegetables and fruits for winter use if tin cans and glass jars for canning are scarce or expensive.

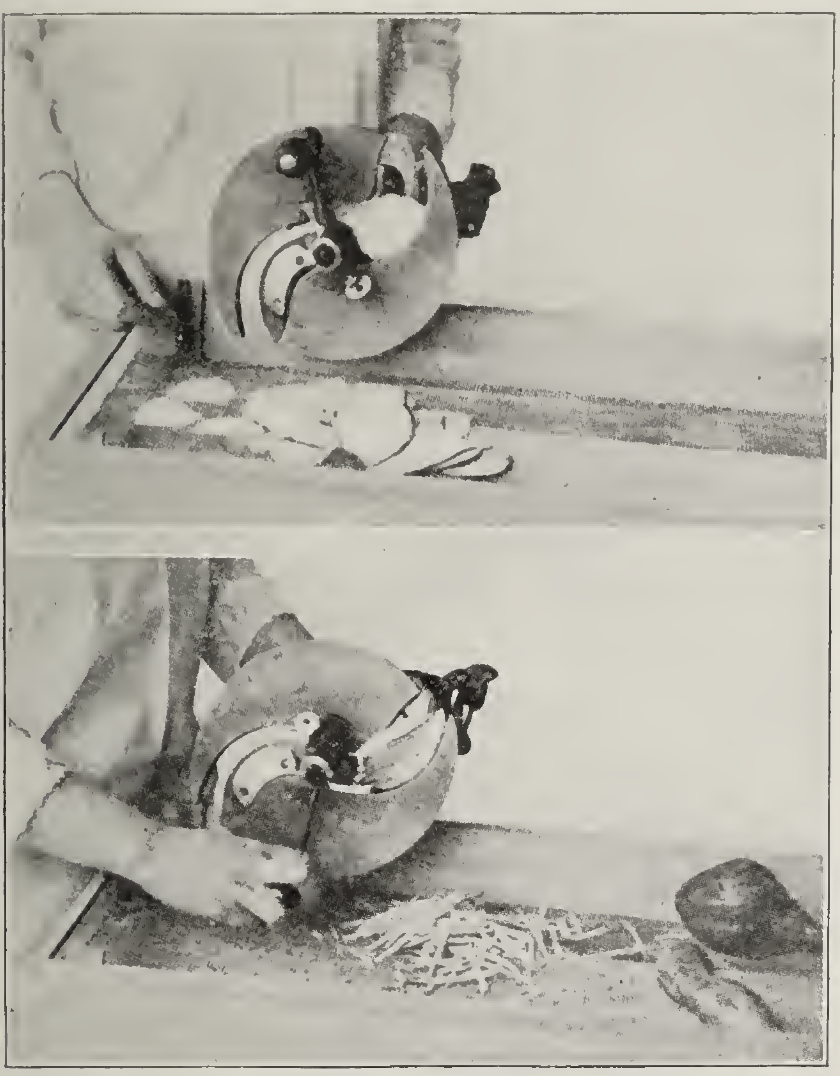


DRYING BERRIES IN THE SUN.

This is the advice of specialists of the U. S. Department of Agriculture, who recently have studied the possibilities of conserving food to meet war needs in spite of any difficulties that may be experienced in obtaining canning containers. Drying was a well-recognized and successful way of preserving certain foods before canning came into general use, the specialists point out, and modern methods make it still more practicable than formerly, either in the home or by community groups.

Methods of Drying.

Three methods of drying have been found by the Department specialists to give satisfactory results. These are sun drying, drying by artificial heat, and drying with air blasts, as before an electric fan. Trays for drying by any one of these methods, as well as tray frames for use over stoves or before fans, can be made satisfactorily at home. Frames and trays for use with artificial heat may be purchsed complete if desired.



SLICING VEGETABLES PRELIMINARY TO DRYING.

Home-made trays may be made of side and end boards three-fourths of an inch thick and 2 inches wide, and bottom boards of lathing spaced one-fourth of an inch. If desired, one-fourth-inch galvanized wire mesh may be tacked to the side and end boards to form the bottoms of the trays. Frames for use before fans may be made of wood of convenient size. Frames for use with artificial heat should be made of non-inflammable material to as great an extent as possible. As many as six trays may be placed one above the other when artificial heat is used.

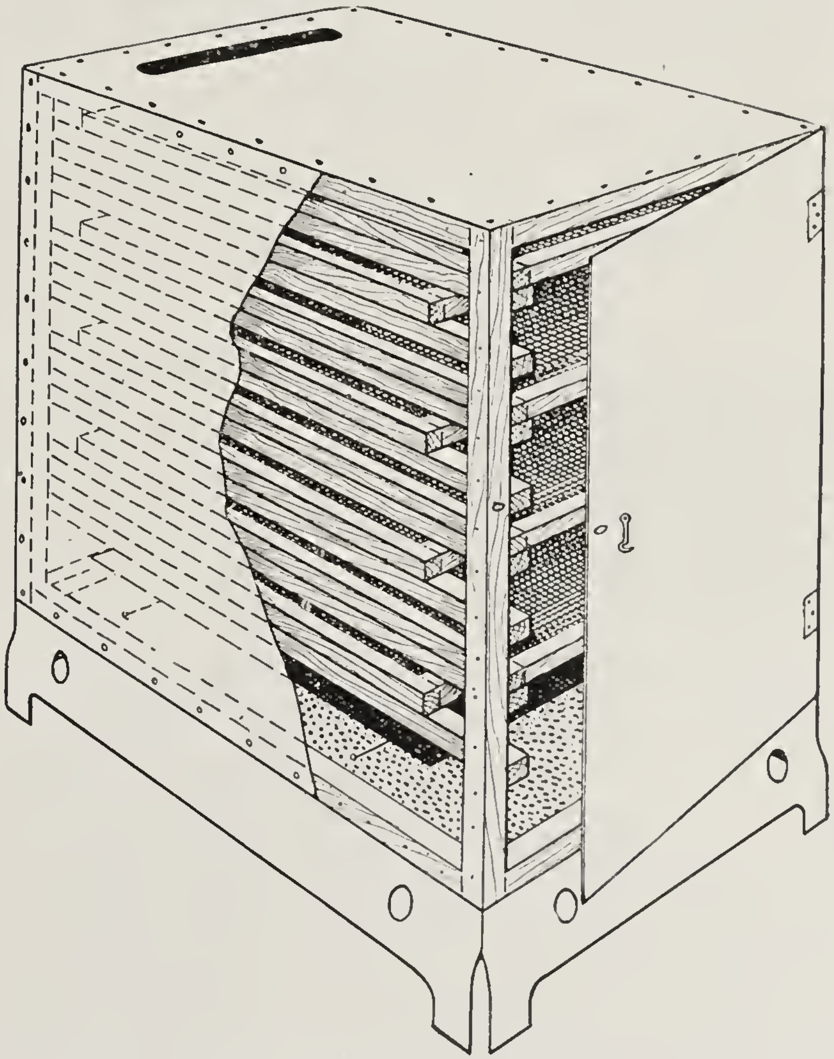
The trays are arranged so that every other one is pushed back three inches from the front, this arrangement affording a free circulation of air, the currents of heated air passing over the product as well as up through it, gathering moisture and passing out through the ventilator. The movement of the current of air induces a more rapid and uniform drying. The trays should be shifted from time to time as the lower ones naturally dry faster than those above.

Another home drier is the cookstove oven, in which bits of food, leftovers, especially sweet corn, etc., can be dried on plates resting on screen or wire trays at a very low temperature. The door should be left ajar and the temperature often noted.

There are two types of cook stove driers on the market. One type is a box-like compartment containing trays through which the heated air rises, carrying off the moisture through a flue. The second type consists of a shallow flat metal box filled with water and designed so that one end can rest on the back of the stove and the other on a leg reaching to the floor.

The various makes of cook stove cabinets—the size convenient for use in the home—have a capacity of from one to four pecks a day. The larger ones, usually called evaporators, have their own fire-boxes underneath and hold from four to five bushels a day. These capacities are based on green apple measures.

Almost any vegetables or fruit may be dried in these evaporators or cabinets: Apples, pears, peaches, plums, raspberries, huckleberries, currants, peas, corn, potatoes, pumpkins, etc. It has been found that the quality and quantity of each are dependent on the ripeness and the species of the fruit, Baldwin apples, for instance, giving a better grade of product than the Jonathans. The regulations of the heat which passes over the product is of paramount importance. If the air applied at the outset is of too high temperature, the surfaces of the vegetables or fruit become hard, or scorched, covering the juicy interior so that it will not dry out. Generally it is not desirable that the air temperature in drying should go above 140 to 150 degrees F., and it is better to keep it well below this point. Insects and insect eggs are killed by exposure to heat of this temperature.



INTERIOR ARRANGEMENT OF DRYING FRAME AND TRAYS.

There is no method which would appeal so much to the modern woman as the use of the electric fan in drying. Every woman knows that at the height of the canning season the thermometer reaches its midsummer maximum, and the day which she has set aside for canning (perishable supplies having been ordered some time ahead) is sure to be a stifling day in the kitchen. To be able to arrange her fruits or vegetables (sliced and ready for drying) on trays stacked in tiers placed before an electric fan and then turn on the current, thus making canning a cool rather than an excessively warm operation, exactly accords with her ideas of modern efficiency. The real advantage of this process, however, consists in the fact that the product kept cool, owing to evaporation, tends to retain its color and eliminate spoilage.

In drying before a fan the number of trays that may be placed one above the other will depend, to a large extent, upon the diameter of the fan. In drying in the sun, trays as described may be used or the products to be dried may be spread on sheets of paper or muslin held in place by weights.

Preparing Products for Drying.

Vegetables and fruits will dry better if sliced. They should be cut into slices one-eighth to one-fourth of an inch thick. If thicker, they may not dry thoroughly. While drying, the products should be turned or stirred from time to time. Dried products should be packed temporarily for three or four days and poured each day from one box to another to bring about thorough mixing and so that the whole mass will have a uniform degree of moisture. If during this "conditioning" any pieces of the products are found to be too moist, they should be returned to the trays and dried further. When in condition, the products may be packed permanently in tight paper bags, insect-proof paper boxes or cartons, or glass or tin containers.

RECIPES.

Spinach and Parsley.

Spinach that is in prime condition for greens should be prepared by careful washing and removing the leaves from the roots. Spread the leaves on trays to dry thoroughly. They will dry much more promptly if spliced or chopped.

Garden Beets, Onions, Carrots, Turnips, Parsnips, Cabbage.

Beets: Select young, quickly grown, tender beets, which should be washed, peeled, sliced about an eighth of an inch thick, and dried.

Turnips should be treated in the same way as beets.

Carrots should be well grown, but varieties having a large woody core should be avoided. Wash, peel, and slice crosswise into pieces about an eighth of an inch thick.

Parsnips should be treated in the same way as carrots.

Onions: Remove the outside papery covering. Cut off tops and roots. Slice into one-eight-inch pieces and dry.

Cabbage: Select well developed heads of cabbage and remove all loose outside leaves. Split the cabbage, remove the hard, woody core, and slice the remainder of the head with a kraut cutter, or other hand slicing machine.

All the products under this heading should be "conditioned" as described above.

Beet Tops, Swiss Chard, Celery and Rhubarb.

Beet tops: Tops of young beets in suitable condition for greens should be selected and washed carefully. Both the leaf stalk and blade should be cut into sections about one-fourth inch long and spread on screens and dried.

Swiss chard and *celery* should be prepared in the same way as beet tops.

Rhubarb: Choose young and succulent growth. Prepare as for stewing by skinning the stalks and cutting into pieces about one-fourth inch to one-half inch in length and dry on trays.

All the products under this heading should be "conditioned" as described.

Food Value of Some Common Package Foods*

In order to preserve a proper sense of proportion when thinking about food values as related to cost, F. C. Gephart, Ph. D., chemist of the Russell Sage Institute of Pathology, has constructed a table showing the weight, cost, protein, fat and carbohydrate content, and number of calories in twenty-eight extensively-used package foods. The prices are those prevailing in the New York retail market during the last week in May, 1917. For further comparison, Dr. Gephart adds that flour at $20 a barrel costs 6.2 cents per 1,000 calories; at $9 a barrel, 1,000 calories cost 2.8 cents.

Name and Manufacturer	—Weight—		Cost	———Per Cent———			—Calories—		Cost in Cents Per
	Oz.	Gms.	Cents	Prot.	Fat	Carbo.	Per Gram.	Per Pkg.	1,000 Cals.
Quaker Oats	20	567	10	16.7	7.3	66.2	4.08	2,314	4.3
Corn Syrup, C. P. Co.	24	678	14	....	...	92.4	3.79	2,570	5.4
Cream of Wheat	28	794	17	10.9	1.6	75.9	3.71	2,946	5.8
Farina, Heckers	28	794	17	11.0	1.4	76.3	3.71	2,946	5.8
Malt Breakfast Food, M. C. Co.	28	794	21	10.7	1.0	75.8	3.64	2,890	7.3
Wheatena	19	539	17	14.2	2.3	75.6	3.89	2,097	8.1
Corn Flakes	8	227	07	11.6	1.4	76.8	3.75	851	8.2
Grape-Nuts	14	397	13	12.6	1.1	78.4	3.82	1,517	8.6
Kellogg's Krumbles	10	284	10	13.1	0.7	78.3	3.81	1,082	9.2
Barnum's Animals, N. B. Co.	9	255	12	8.0	6.5	76.6	4.07	1,038	11.5
Olive Oil	14¾	418	45	....	100.0	....	9.30	3,890	11.6
Fig Newtons, N. B. Co.	8½	281	13	4.2	4.7	78.5	3.83	1,076	12.1
Tip-Top Bread, Ward B. C.	10	284	10	9.1	0.6	51.5	2.54	721	13.8
Cheese Wafers, L. W. Co.	..	187	12	14.9	12.2	63.3	4.34	812	14.8
Sea Foams, N. B. Co.	15	425	28	7.3	12.2	73.4	4.45	1,897	14.8
Arrowroot Biscuit, N. B. Co.	6¼	196	13	7.8	10.7	76.0	4.44	870	14.9
Social Teas, N. B. Co.	6¼	196	13	6.5	9.9	76.9	4.34	851	15.3
Baronet Biscuit, N. B. Co.	6½	184	13	8.3	13.4	73.5	4.60	846	15.4
Suffolk Biscuit, L. W. Co.	6	170	12	6.3	11.7	75.1	4.43	753	15.9
Cameo Biscuit, N. B. Co.	5¼	149	13	5.0	17.2	70.6	4.70	700	18.5
Chocolate Wafers, N. B. Co.	5½	157	13	7.0	10.9	73.1	4.30	675	19.2
Crackerjack	2	57	05	7.3	5.7	82.2	4.20	240	20.9
Cocoa, Hershey	8	227	25	22.7	26.2	41.6	5.07	1,151	21.7
Plain Milk Chocolate, Hershey	1⅜	39	05	3.7	32.0	56.6	5.66	221	22.7
Adoras, N. B. Co.	2⅝	74	13	5.7	25.6	65.8	5.93	439	29.6
Nabisco Wafers, N. B. Co.	2⅝	74	12	4.2	21.3	71.1	5.07	384	32.0
Snappy Cheese, Shefford	3¼	92	12	25.8	29.0	6.1	4.01	369	32.5
Cheese Imperial, MacLarens	2	56	10	25.5	32.3	5.9	4.29	240	41.6

*From New York City Health Department Bulletin, June 9, 1917.

The Production and Distribution of Milk

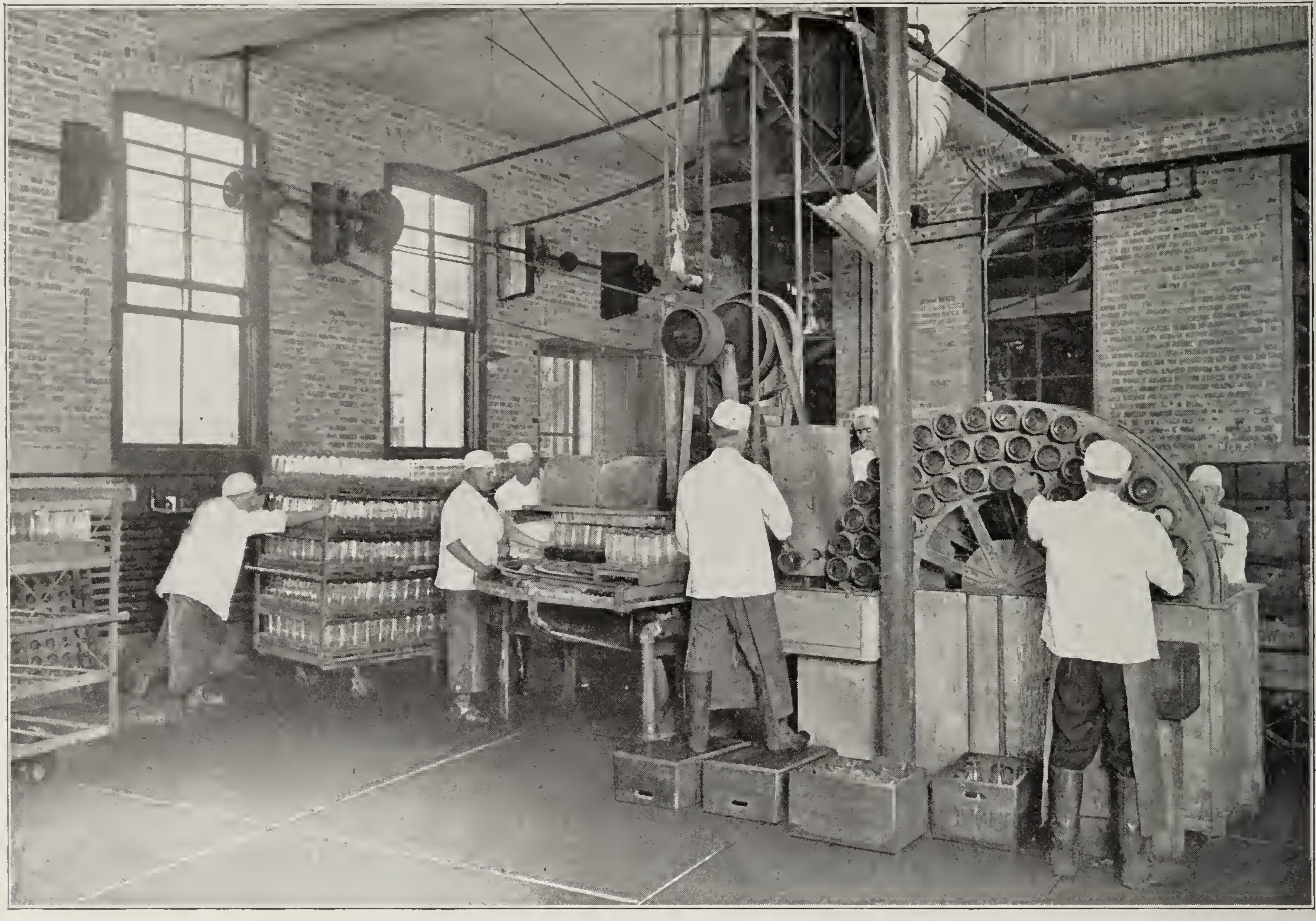
By Martin Sprague
Assistant Editor

IT is estimated that the United States produces nine billion gallons of milk a year, about sixteen hundred million gallons of which make up the milk supply of the cities, towns and villages. The milk industry as it exists today belongs to the same generation as the automobile industry, the telephone industry, and the era of electricity. Previous to 1840 there was no milk shipped by rail, and between 1850 and 1885 the business of supplying milk to the centers from which the family cow had been crowded out was a straggling, unregulated, unorganized affair. Since 1885 the milk supply has been given a greater amount of study and careful investigation than any other food industry has had bestowed upon it, and the result of the combined activities of agriculturists, physicians, scientists and dietitians has resulted in nothing less than a revolution of the whole industry.

The development of the milk industry has been controlled by certain natural peculiarities of milk which make it unique among food products. Dairy products are the only important foods that are generally consumed raw. Other foods which are usually eaten without cooking are naturally protected by nature with practically germ proof coverings. The rind of oranges, the skin of bananas and apples are almost perfect packages. But milk, after it leaves the cow's udder, is not only without protection, but it offers peculiarly favorable conditions for the multiplication of microscopic organisms. The triumph of the dairy industry is that it has been able to keep step with the growth of the cities, and to supply sweet, wholesame palatable milk to the huge human hives where the presence of a cow would seem as strange as that of a hippopotamus.

The wide publicity given to reports of food officials stating the bacterial count of milk samples makes it important for the consumer to have a just idea of the significance of these micro-organisms. Bacteria are minute plants, of various sizes, but averaging about one-twenty-five thousandth of an inch in length and half as much in breadth. Like all other orders of the vegetable kingdom, some of them are obnoxious to man, some are desirable, and the great majority have no practical importance whatever. The typical bacteria of milk are those that produce lactic acid. As these multiply, the effect of the acid is to destroy other varieties, and when the acid amounts to 0.9 per cent practically all other bacteria have been killed. The desirability of lactic acid in milk or cream depends on what it is to be used for. The butter maker needs it, but we do not care for sour cream in our coffee. Another class of bacteria which multiply in milk cause it to assume strange colors or other characteristics, and without being injurious to health they make the milk unsalable. These, with some others that have no effect on the milk that can be detected by the sight or smell, are the ones normally present in milk. They are dangerous only in the economic sense that they spoil the milk for the purpose that the housewife or dairyman intends it for. The germs

A COUNTRY MILK BOTTLING PLANT AT BARRINGTON, ILLINOIS.



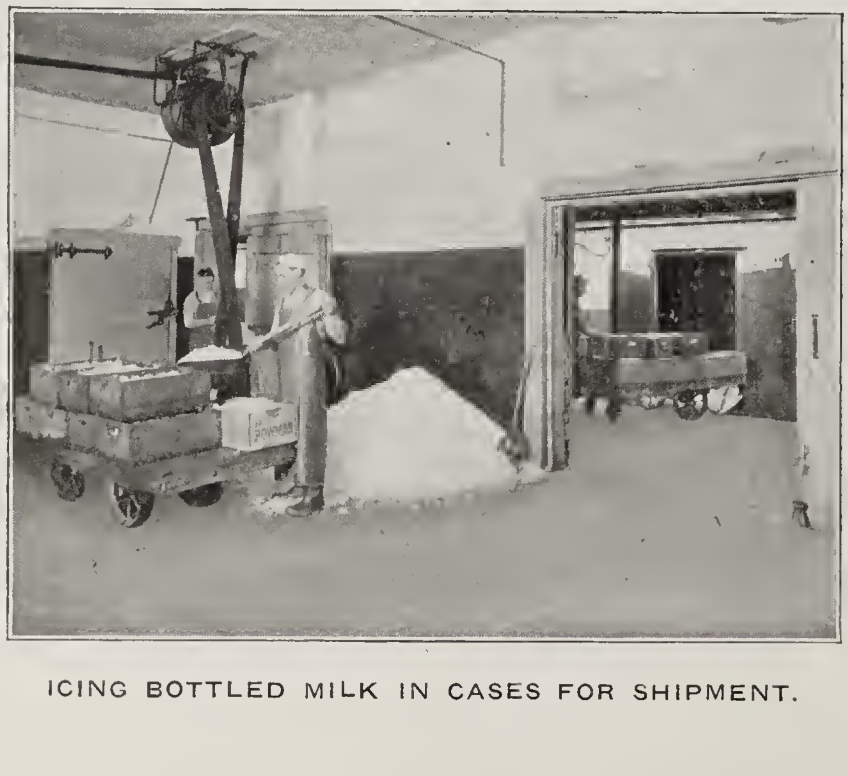
WASHING AND STERILIZING MILK BOTTLES.

of communicable diseases that are found in water supplies are also sometimes present in milk, but as far as is known they do not multiply in milk, and fortunately they are easily killed by pasteurization. The reason why health authorities object to high bacterial counts is not on account of the bacteria themselves, but because, in general, they do not occur in milk that is properly cooled, properly protected, and delivered with all reasonable expedition to the consumer.

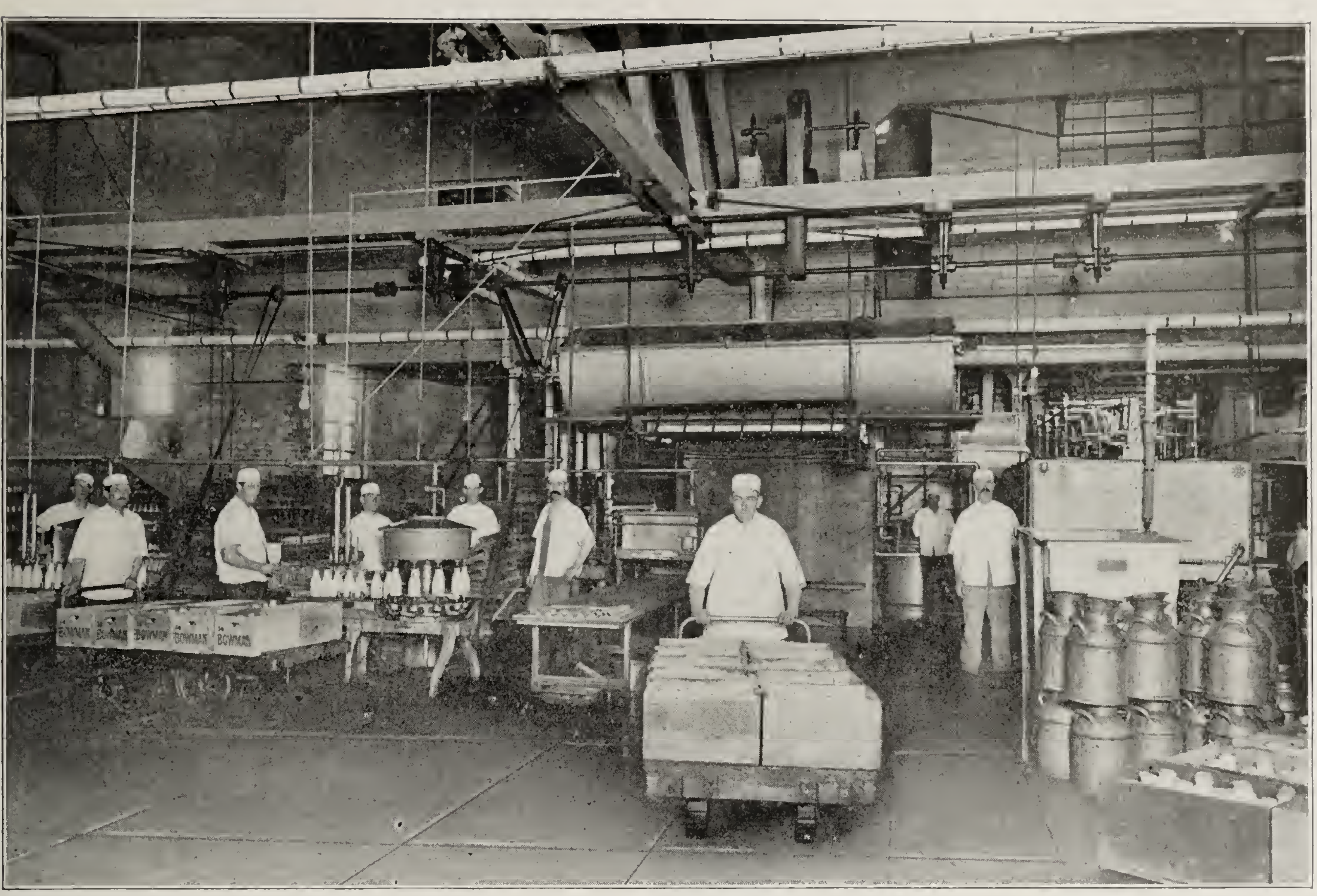
With the increase of special knowledge of the dairy industry, and the upgrowth of a comprehensive literature regarding it, the standards of milk production and inspection have had a continuous tendency to approximate perfection, and at present the great majority of the milk consumed in the cities is above suspicion. With the state and city food departments, the agricultural colleges and experiment stations and the dairymen's organizations a large factor in the improvement has been the gradual elimination of the small, irresponsible milk dealer, and the absorption of the larger part of the business by well-organized distributors, employing large capital, and able to make use of the latest milk-handling machinery as it was invented. The average city milk supply now comes from farms where its production is the principal business of the farmer, is handled by comparatively large companies that exercise a control over the conditions under which it is produced, and both the milk and the farms are regularly inspected by state and city authorities.

The leading breeds of dairy cattle in this country are the Holstein-Friesian, the Ayrshire, the Guernsey and the Jersey. The first are popular because they produce milk in large quantities, averaging about 3.5 per cent butter fat, the Ayrshires are good producers and average 3.8 per cent butter fat, while the Guernseys and Jerseys are valued because their milk, while not so abundant, is particularly rich and yellow. Many dairy farmers maintain mixed herds in which the milk of the Jerseys and the Holstein-Friesians tend to standardize each other, but there is a tendency for dairymen to become warm partisans of one particular breed, so that they prefer to keep nothing else.

Either once or twice a year the milk distributors make contracts with the farmers, by which they agree to buy all the milk produced at stated prices, which vary from month



ICING BOTTLED MILK IN CASES FOR SHIPMENT.



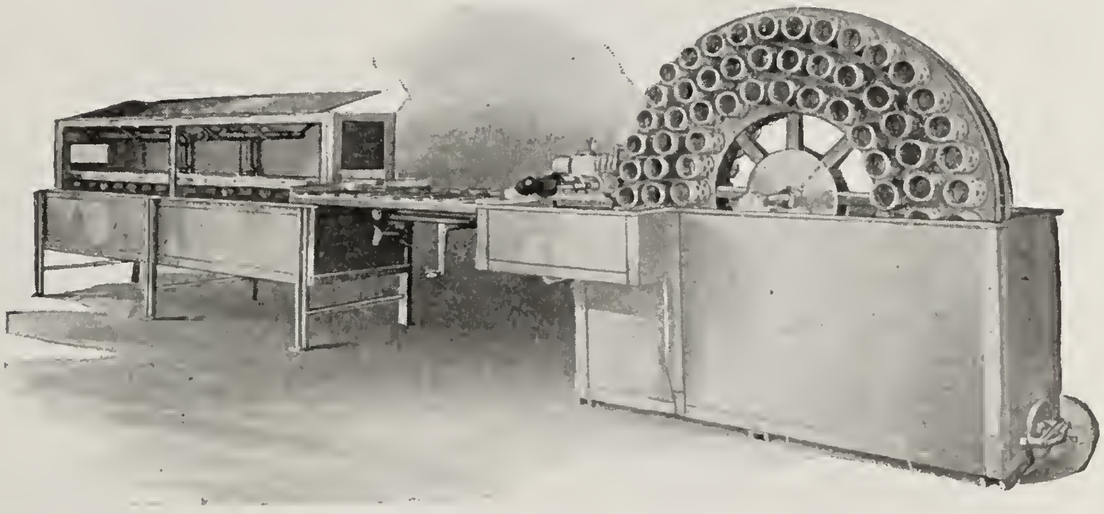
INTERIOR OF BOTTLING PLANT, SHOWING FILLERS IN OPERATION.

to month, the lowest price being paid in June and the highest in the winter months. The price is based on so much per hundred pounds of milk testing a certain per cent of butter fat, and a premium is given for milk testing over the standard and a deduction is made for that running lower.

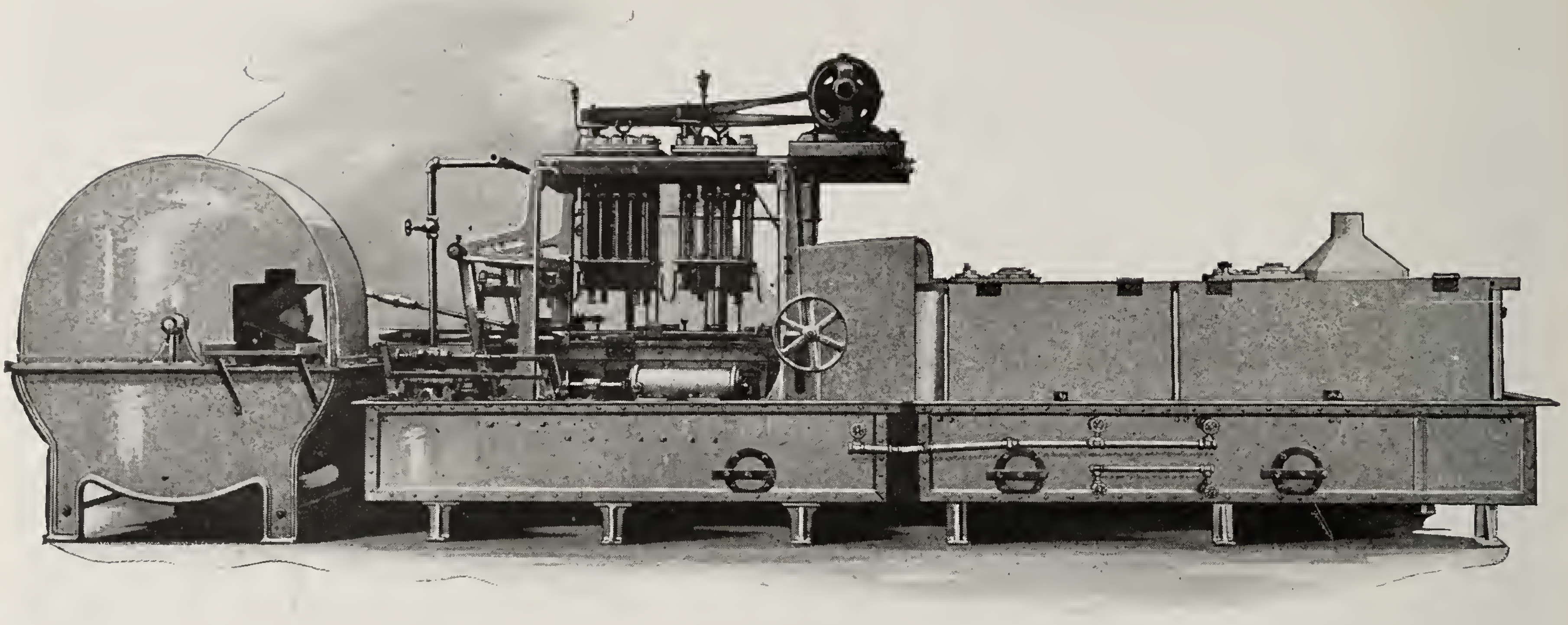
As part of his contract, the farmer agrees to keep his cows in clean, well drained and well ventilated stables, where they have access to good pure water, that they shall have an abundance of wholesome food, and that no milk shall be delivered from cattle in any way diseased. The milking must be done in the most cleanly manner, and immediately after milking the milk must be cooled to 55 degrees and maintained at that temperature until it leaves the farm, and shall not have a temperature above 60 degrees when delivered on the platform. The farmer is also required to provide a milk house, not connected with any stable, which shall be used for no other purpose. From each lot of milk delivered the dairy company takes a sample, not only to determine whether it is up to standard in butter fat, but also to judge by examination under what conditions it is being produced. Regular inspectors visit the farms to see that the conditions of the contract are complied with.

Milk is either shipped in cans by special fast trains to be bottled at the large city plants, or it is bottled in smaller plants located in dairying centers. There is no question that the danger of having milk badly handled is before and after it is in the possession of the large milk distributor. Both the farmer and the housewife may be ignorant, careless, or lacking in proper facilities to protect the milk, but the dairy company, with its scientifically arranged and operated plant, and its reputation and investment to guard, is both able and anxious to have the milk leave its possession in at least as good condition as when it was received.

For this reason the country bottling plant must be considered a more advantageous method of handling milk than the city plant. The objections to it are purely economic. Milk, when bottled, is bulkier and heavier than in cans, and so shipment in bottles is more expensive. The investment in bottles and the



A POPULAR TYPE OF BOTTLE WASHER.



AUTOMATIC SOAKING, BRUSHING, RINSING AND STERILIZING MACHINE, WITH A CAPACITY OF 8,000 BOTTLES AN HOUR.

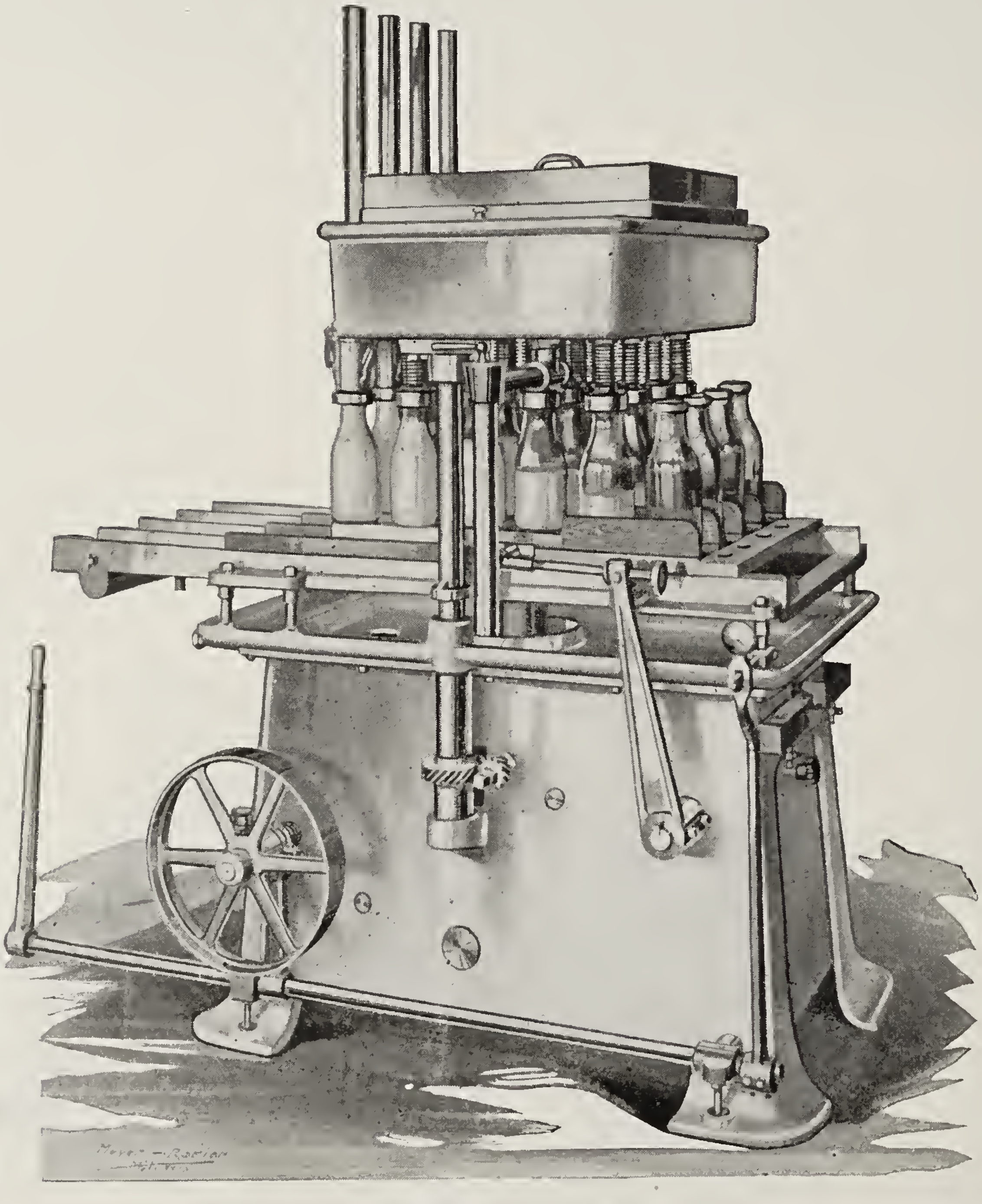
loss from breakage must necessarily be heavier when they are used for shipping. But where a sufficient quantity of milk is produced in a small territory, and close enough to the city so that freight rates are not prohibitive, bottling in the country is sure to be adopted.

The general method of handling milk at the country bottling plant may be understood from an account of the station of the Bowman Dairy Co. at Barrington, Ill. Barrington is in the midst of an extensive dairying country, which covers northern Illinois and southern Wisconsin. Although it lies on the border of Cook county, it is a typical agricultural village, and the bottling plant is the link to bind its placidity to the roar of South Chicago's steel mills, and the bustle of Chicago's mail order houses.

After the farmers have finished milking and cooling the milk about six o'clock, they start for Barrington, and at eight the first of a long procession of spring wagons, filled with milk cans, and covered with damp canvas, draws up the inclined road that leads to the bottling plant. The plant itself is an architectural adaptation of the maxim, "Remember your contract. Be clean." The stones that protect the driveway are whitewashed, the trunks of the shade trees are whitewashed, the employes wear white rubber boots under their oil-skin aprons.

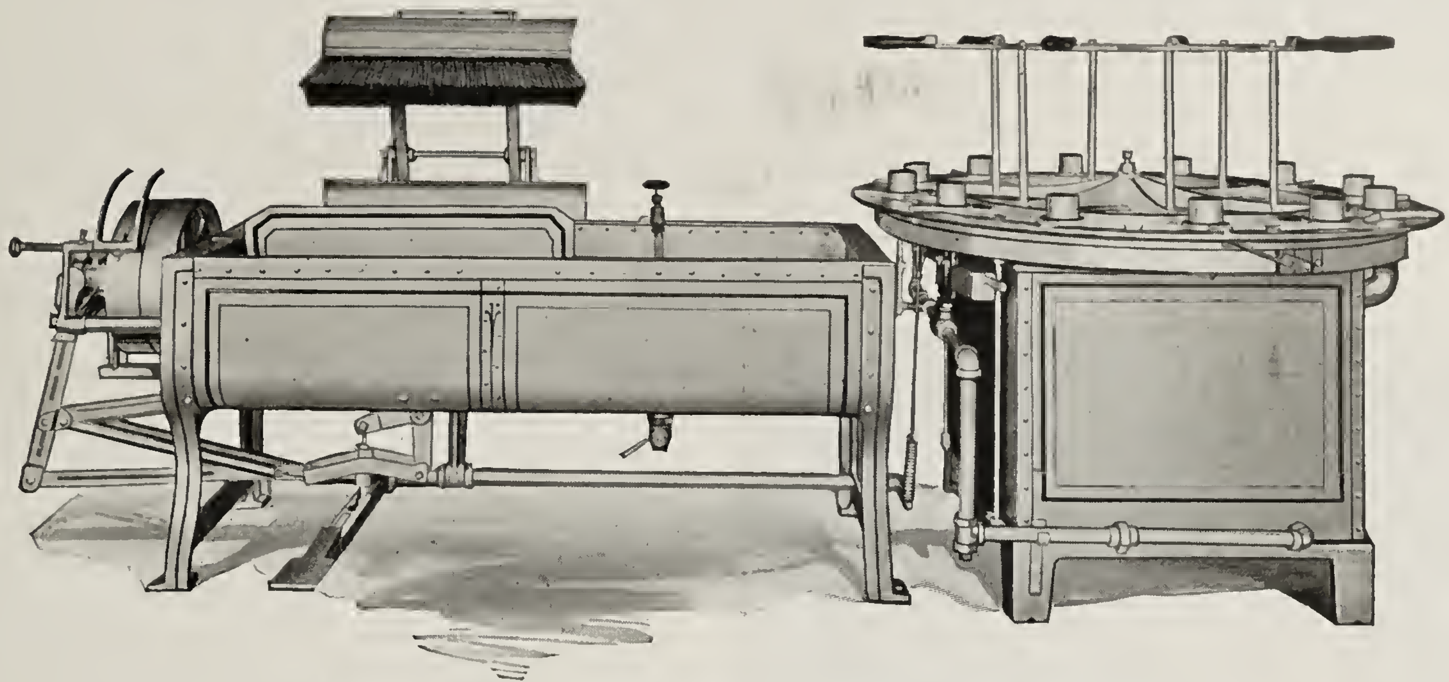
When the milk cans are received, they are tested by a skilled operator who relies upon his sense of smell to tell whether the milk is fresh. Testing by taste is not practical after the first few dozen samples. A sample of each lot is taken, and the cans are emptied into the weighing tank, and the amount of milk marked on a chart.

After each lot is weighed, it is run at once



BOTTLE FILLER AND CAPPER.

through the clarifier. This is a machine resembling a cream separator in action, but which does not cause a separation of the butter fat. Even under the most careful management, some hairs, dust, and cellular tissue from the udder are sure to be present in milk, and the removal of these by clarification is a concession to the esthetic sense of the consumer.



MACHINE FOR WASHING AND STERILIZING CANS.

After leaving the clarifier, the milk is pasteurized. This process kills any disease germs that might be present, and also kills the majority of all the bacteria present so that the milk will keep sweet longer than it otherwise would. The machine used at this plant consists of a heating chamber in which the milk is passed in a thin layer over a steam heated surface, and instantaneously raised to the temperature of 143 degrees. It then passes into tanks where it is held at the same temperature for 28 minutes. These tanks are equipped with steam pipes to hold the temperature, but they are seldom necessary, because the tanks are enclosed in an insulated room which is heated by the hot milk itself to about 100 degrees, and the radiation of heat is reduced to a minimum. An ingenius economy is affected by running the hot milk back through the heating unit, so that it is partially cooled by the cold milk coming in, and at the same time helps to reduce the amount of steam needed to raise the new milk to a pasteurizing temperature.

The efficiency of pasteurization depends on two factors, the amount of heat, and the length of time it is maintained. A high temperature imparts a cooked taste to milk, and affects the enzymes, albumen and salts. For this reason it is necessary to use a low temperature and hold it for a considerable length of time, although in the so-called flash process, in which the milk is heated to a temperature of 165 degrees for 30 seconds, the bacteria are killed and undesirable changes do not occur. Practical difficulties in heating all the milk in the machine to the high temperature necessary have led to a preference for the holder type of pasteurization.

After leaving the pasteurizer, the milk is cooled by allowing it to flow over cold brine pipes, aeration taking place at the same time. After being cooled, it runs into closed tanks to be held until it is bottled. A slowly revolving paddle prevents the separation of the cream.

The bottling is done by rotary bottling machines, and the caps are also put on by machinery. The milk bottlers move at the comparatively low speed of forty bottles a minute.

In shipping bottled milk to the city, each case of a dozen bottles is covered with a shovel-full of broken ice, the cases are packed in the car, and the car itself is filled to the roof with ice.

An important part of the work of bottling milk is the thorough sterilization of the bottles. After being washed in a machine which soaks them in a solution of caustic soda, brushes them inside and out, and rinses them in clear cold water, they are put in ovens filled with live steam.

Why Bread Is Cheaper in France.

France has dealt with the bread question on entirely different lines from those pursued in England. In the first place the need of the industrial masses being reassured as to bread prices has impressed French statesmen, and so they have fixed the price at a level materially lower than which prevails here. But they have not been able, any more than our own statesmen, to get over the inevitable difficulties of a home production below requirements. They have accordingly enacted (1) that the loaf should contain cheap additions of non-wheat ingredients to an extent threefold that which is compulsory in England; (2) that every French grower of wheat should receive a small bounty on his old wheat area and a much bigger bounty on new land brought under wheat.—*Bakers' Helper.*

Next Canners' Convention Will Be Held in Boston.

The eleventh annual convention of the National Canners' Association and its allied associations, the Canning Machinery and Supplies Association and the National Canned Foods and Dried Fruit Brokers' Association, will be held in the city of Boston, Mass., February 11 to 16, 1918. Headquarters will be at the Copley-Plaza Hotel.

On account of conditions surrounding hotel accommodations in Boston, there being no one hotel having a very large number of rooms, it has seemed desirable that reservations be made through a location bureau to be established by the City of Boston Hotel Association.

Requests for reservations may be addressed to F. C. Gillmore, secretary of the City of Boston Hotel Association, 100 Boylston Street, Boston.

The Earlier Career of Herbert C. Hoover

By Denis Donohue

San Francisco Correspondent, The Los Angeles Examiner.

Although Herbert C. Hoover is today one of the three most talked-of men in America, only a few vague facts are generally known of his private life and character. In 1914 he was living a somewhat secluded private life in London, practically unknown on this side of the Atlantic. His public career began when he undertook to get back to our shores the Americans stranded in Europe, and it has proceeded with a rush that will almost inevitably give him a command over the daily life and habits of the inhabitants of this country of such nature as no man ever possessed before. There is a natural interest in the career of a man appointed to posts of such magnitude. The following brief account of his life up to 1914 is taken from an article originally published in the Los Angeles Examiner:

HERBERT C. HOOVER.

Stanford University first opened its doors in 1891, and among the swarm of students attracted from all parts of the Union and several foreign countries, was Herbert Clark Hoover, aged 16, a native of Iowa. His father and mother were dead, and such estate as they had left had been lost through unfortunate investments, with the result that young Hoover had been supporting himself from early boyhood. He came to Stanford directly from Oregon, where he had been working for a year, and he brought sufficient money with him to see him through his first semester. It is interesting to learn that although Hoover succeeded in passing the entrance examination, he was conditioned in one subject and had to make it up during his freshman term.

During the whole four years' course this man who was destined to accumulate a comfortable fortune before he was 24 and to become a millionaire at 27, paid all his living and college expenses out of his own earnings without financial assistance from anyone. He acted as agent for a laundry and did odd jobs for Prof. Branner in the geological laboratory, such as grinding slides for microscopic studies of the constituent minerals in rocks. Later he became Branner's regular laboratory assistant, and in the summers he served on several geological surveys, including work in the Sierra Nevada with the United States Geological Survey.

All this time he was making many warm friends, but general recognition of his ability by his fellows did not come until his last year in college, when he was elected treasurer of the student body, managing all athletic affairs. At Stanford he first met his future wife, Lou Henry, daughter of a Monterey banker. Miss Henry entered Stanford as a student of geology at the beginning of Hoover's senior year.

He was graduated in 1895. After working for a short time in a mine in New Mexico he obtained the position of assistant manager of the Morning Sun mine in Grass Valley.

Louis Janin, famous California engineer, the man who first correctly worked out the very complex geology of the Anaconda, happened at this time to be looking for an office assistant, and he selected young Hoover. This was in 1896. The regular pay for this job was pitifully small—only $50 a month—but this was supplemented by occasional commissions from clients of Janin's to sample mines or make minor examinations—for which young Hoover was allowed to charge moderately.

Now, it is thoroughly characteristic of the man who but the other day saved the Belgians from starvation, that no sooner did Herbert Hoover get this poorly paid but, as he supposed, permanent employment, than he scraped up every meager dollar at his disposal and sent East for his younger brother, Theodore (now a distinguished engineer), his sister, and a girl cousin, who was in poor circumstances.

It was in 1897, his second year in Janin's office, that the golden door of opportunity opened wide to this young engineer, who never shirked an obligation and fairly reveled in hard work. Louis Janin was importuned by a big firm of London mining operators, Bewick, Moreing & Co., to select some young California engineer to act as their field geologist in Western Australia. Janin, some five years before, had recommended an engineer named Goldstone to this company, and he had made good. Janin offered the place, which carried with it a salary of $6,000 a year, to Hoover, and pleased him mightily by telling him that, in his judgment, he was entirely competent to fill it.

But there was an obstacle, which a friend relates as follows:

"Although Hoover was then just entering his twenty-fourth year, he did not look a day over eighteen. The English firm had wired Janin to tell Hoover to report in London and Hoover was afraid that when they saw him they would turn him down because of his youth. At my suggestion he cabled them direct and obtained by wire from them a ratification of the contract. It took every dollar that we could scrape together to get him to London. Bewick, Moreing & Co. were game. They stood by the terms of the contract with regard to pay, but they must have thought him very young for they wired secret instructions to their agent in Australia to put Hoover in as manager of one of their smaller mines and not let him act as field geologist in the selection of other mines for investment until he was a bit older."

When the Bewick-Moreing agent at Perth, West Australia, broke the news as gently as he could to the young American that he was to draw his $6,000 a year for work involving less responsibility than he had supposed, Herbert Hoover promptly resigned. To be sure, as he stood there, jingling in an almost empty pocket the few remaining shillings left from his passage money, he was 15,000 miles from home, in debt to his employers, friendless, and a stranger, and yet those who know him best say that he did not falter. This was the crucial moment in Hoover's whole career. It was then and there that this juvenile Pizarro drew a line on the sand with his sword's point—behind it lay Panama and obscurity—$6,000 a year in a small West Australian mining camp—before it, the incalculable wealth of the Incas—an unexplored land and the golden possibilities of a young engineer's day dreams.

The Bewick firm hastened to back track when they heard from their agent, and Hoover was given both the management of the mine and his legitimate work of a field geologist.

Fortune favored the young adventurer from the start. The very year he reached West Australia, 1897, and on his very first trip, investigating mining possibilities, he ran across a prospect called the "Sons of Gwalia." The people who were working it only faintly realized how promising it was. Hoover examined it; took a short-time option on it; and cabled his principals to send another engineer to confirm his examination. The Bewick-Moreing firm did not even answer his cablegram; so he cabled again, more urgently. No answer; but a third cablegram brought a reply bidding him to look it over again carefully and report. He reported by cable, as the option was about to expire, and it cost the firm $1,500 for the message, but they bought the property for a trifle on his report. He took charge at once as manager and in a few months the development work, done under his direction, revealed large bodies of rich ore. The firm sold the property at a profit of half a million dollars, and Hoover, then aged 24 years, was given $33,000, it is said, as his share of the profits. Better still, his salary was increased to $15,000 a year, with a percentage of the future profits from such properties as he experted and the firm bought. The general management of the extensive mining interests of the firm in West Australia was placed with Hoover. This included such mines as the East Murchison. Nothing more was said about his youth. He had made good.

In 1899 he was appointed chief engineer of the Imperial Bureau of Mines, at the instance of the minister of mines of the province of Yunnan. Yunnan is one of the most remote provinces of China, jammed up against Tibet, and ever since Marco Polo's day, and even before it, it has been a large producer of gold and other metals, albeit the mining and metallurgical processes have been of the most primitive description. Hoover headed an expedition that explored and prospected vast tracts in the interior of China that had never before been visited by white men. He negotiated a loan in London of $3,000,000 for the Yunnan official and started the development of a number of Chinese mines, which are now controlled by the Chinese Engineering & Mining Co., which was organized by Hoover in 1901, and of which he is now managing director.

When Hoover was just 27, he made his first million.

The Chinese Imperial Government had granted a number of concessions for the construction of railroads and the development of coal mines to Russian and other corporations, and regretted the act ere the ink was dry. They had reason to regret it, for Russia, simultaneously with beginning work, moved a body of troops onto the right of way, and where Russia sets her foot in Asia there she stays. Fortunately for many a peacock feather and yellow jacket of Chinese officialdom, the contracts contained a clause that they might be canceled by China on payment of a certain indemnity, plus the expenses with interest, etc. The amount needed was $8,000,000, and, as usual, the imperial treasury was empty.

In its terror the Chinese government appealed to Hoover and offered him a full partnership with China in all the railroads and mines if he would raise the necessary money. He went to London, returned with $8,000,000, and his company acquired a half interest with the Chinese government in properties of incalculable value. The Russians fumed and stormed, but had to surrender, albeit with a very bad grace.

It was the year following this coup that Bewick, Moreing & Co. offered to take Hoover into partnership. He accepted, and accordingly he moved to London in 1902.

Space is lacking to relate here his extraordinary achievements in mining while a partner in this old-established firm. He subsequently sold out his interest in this firm and is now managing from offices in London, New York and San Francisco scores of mines in many countries. From his office in San Francisco he operates the Oroville Dredging, Ltd., the Pato Mines, a gold-dredging enterprise in Colombia, and the Babilonia Gold Mines, and Central American Mines, Ltd.—all rich producers.

A faint idea of the magnitude of his mining operations may be deduced from the statement that he now has 125,000 men working for him.

One of Hoover's most romantic exploits was the rediscovery, in Burma, of the amazingly rich silver-lead-zinc mines near the Siamese frontier. They had been worked by the Chinese from time immemorial, but some time in the Middle Ages the Chinese were driven out and during 400 years the secret of their existence lay buried in the jungle.

If space permitted, it would be a genuine pleasure to tell how Hoover and his clever wife translated into flowing English the "De Re Metallica" of George Agricola, a medieval metallurgist—no easy task, as Agricola's Latin is exceptionally crabbed, and he coined 1,500 words not to be found in any Latin dictionary.

Certain it is that whether his task is translating for recreation a medieval textbook, or developing a mine, or feeding and clothing the starved of Belgium, Herbert C. Hoover always "makes good."

Food Wastage in New York

By Isaac Russel.

In New York state a grip on the food supply held in public warehouses and in transit from foreign ports through New York for inland American cities has just been obtained by public servants.

The man who has taken up this new public activity to prevent the wastage of stored food and food in bulk in transit is acting under the war emergency spirit by the aid of old laws. His chief weapon is to be publicity, and it will be publicity of a kind not heretofore turned upon the food trade.

For instance, a commission merchant received a large consignment of raisins from a foreign port. Cold storage warehouses were crowded; so these raisins went into an "open warehouse." Immediately things began to happen. Lucius P. Brown, director of the Bureau of Foods and Drugs of the Health Department knew from previous experience what would happen to those raisins. He knew that weevils and other bugs were at that very time devastating a shipment of nuts stored in an adjoining warehouse. He knew that as soon as they finished with the nuts the bugs would march right over and begin a general offensive agianst the raisins.

This thing had been much talked over by food reforms and food committees named by the governor and mayor of New York but the trade had not taken up the problem definitely. The commission merchant in the past had stored the goods that way and if they spoiled before the date of sale he wrote to the shipper to that effect, remitting a certificate of condemnation in lieu of a check on the bank. As long as food was something thought of as just happening in abundance; as long as nobody considered it had to be sought after, coaxed to market, treated well, and all that, the old system was never challenged.

But the public officials, after tracing back some big records of waste of food in warehouses, found that farmers learned to quit sending food to New York. They found that the consumer had to pay in the end for all food wasted. The figures of food wasted, when totalled, were appalling. Mr. Brown began to keep careful account of all food that had to be ordered to the dump. He made an intensive study of just where the fault lay. The fault wasn't always the same. Sometimes a steamship at sea lost a rudder and came in a month late with onions in full sprout and ready to blossom. But in this particular case of the raisins he found them going to the warehouse bugs just as hundreds of tons before them had gone. So he took measures to stop that kind of waste. He showed in advance that it wouldn't pay. He sounded the alarm to the public. The commission dealer did some genuine thinking on what had become a genuine problem. He wasn't any more anxious to be a bad friend to America in the present food crisis than any other good citizen was. So he acted. He acted with disinfectants and bug killing vapors. He drew a line around his raisins that no bug could pass and live and so this particular lot of food is going to find its way into general consumption.

Here is the size of the tremendous problem of food wastage in New York that Director Brown has decided to tackle with all the resources at his command. From January 5th to May 5th, a period of four months, the amount of food floated out to sea to be dumped because it was spoiled reached these astounding totals. The figures, expressed in pounds, are from the official Health Department records:

Grapes	652,382	Onions	1,070,040
Beans	25,783	Apples	26,580
Potatoes	15,480	Pears	21,605
Egg Plants	11,112	Fish	82,560
Cabbage	121,840	Walnuts	13,175
Lettuce	1,286,116	Kale	90,930
Celery	2,629,937	Turnips	43,445
Poultry	59,595	Almonds	19,606
Pineapples	53,190	Lemons	271,440
Chestnuts	8,331	Strawberries	58,117
Oranges	91,625	Radishes	15,940

The list runs on through many other kinds of food in similarly startling totals.

The onslaught against the wastage was postponed until war time because the problem was considered a trade problem only and facts about it were trade secrets. The Health Department in tackling it found some romantic as well as sad facts. For instance, there was one shipload of potatoes that had to be thrown away. A "potato king" had conceived the idea of getting into the famine market with a shipload from Nova Scotia. The only ship he could get was a sailing ship. He loaded it and sent it forth, but it ran into a hurricane and had to put into a port in Canada for repairs. While it was being fixed up along came a blizzard, froze the harbor in solid and the potatoes were thus held in the ice for four months. The breaking up of the ice in the spring was followed by their arrival at destination—all soft from having been frozen while held so long in transit.

It was found that New York had only 22,000,000 cubic feet of cold storage for the 7,000,000 dependent on the New York market, whereas Chicago and Boston had as much cold storage space for their more circumscribed needs. The result was that many articles such as nuts and semi-dry food went into open storage only to fall prey to bugs that would be frozen into inactivity in the cold storage rooms.

The Merchants Refrigeration Company, once the situation was shown forth in all its ugly glare, began at once the erection of the city's largest cold storage plant—a plant to contain 5,000,000 cubic feet of storage space under one roof. It will be strategically located to handle food, eggs and poultry at the piers of the large ocean-going freight and passenger ships. The railroad freight terminals were found to be inadequate to give perishable food full protection. Nearly all of them are now being overhauled, rebuilt, or furnished with extensions that will make handling the goods received much more efficient. Mr. Brown has gone into the question in such detail even that he has provided that every farmer who sends in stuff improperly packed shall receive notice of that fact with explanations as to how to pack his stuff to guarantee it a fair market chance.

All reforms so far undertaken in this work have been carried out with the hearty co-operation of the trade itself rather than through a head-on collision between dealers and public officials.

Wholesale Grocers Liberty Convention

PLEDGING their unconditional loyalty to President Wilson and his program of food conservation and distribution, the National Wholesale Grocers' Association of the United States held their Liberty Convention in Chicago on June 20th and 21st. Dominated, as every gathering at this time must be, by the ominous shadow of the war, the spirit of the gathering was one of the purest patriotism. The wholesale grocers came to Chicago with one thought uppermost: to offer themselves and their fortunes, their organizations and their tremendous knowledge of the food industries in the service of their country.

Herbert C. Hoover has already had numerous consultations with the officers of the Wholesale Grocers' Association, and to some extent the convention was a whole-hearted ratification meeting, to endorse and pledge support to a program which has already been formulated. In order to take care of the increased expense which these plans will entail, the dues of the association were doubled. Ever since its organization the association has been working in an extremely broad-guaged way, not merely to correct trade abuses in its own immediate field, but to improve and make more economical the distribution of foodstuffs in every way. There is no sharp divergence between the work they have been doing for the past decade and the work they will now undertake in co-operation with the councils of defense.

Although it was impossible for anyone who attended the sessions to be even momentarily unconscious of the deep and tremendous significance of the little red, white and blue buttons that identified the delegates, or to forget that this, as truly as the camp at Ft. Sheridan, was a rendezvous of men determined to live and fight for the United States, the convention did, in fact, transact more than the usual amount of routine business. The addresses and reports, which followed the program published in the June issue of THE AMERICAN FOOD JOURNAL, were more than ordinarily interesting.

President Theodore F. Whitmarsh and Secretary Alfred H. Beckmann were re-elected. The president, in his opening address, gave a general review of the work of the association during the past year, and in his report to the executive committee urged that the educational work, especially the education of the retailer, should be greatly extended. The Membership Committee reported a net gain of 51 members during the year, and the treasurer gave the expenditures for all purposes as $67,893.69.

The Pure Food and Legislative Committee had a busy year, involving the investigation of some 60,000 bills, 1,261 of which had direct bearing on the interests of the association. The report, in part, was as follows:

Due to the rising cost of food, this year has witnessed an exceedingly large number of bills introduced in the legislatures of the various states for the purpose of creating market commissions empowered to purchase and sell food, and in most instances at cost Such bills usually provided for a liberal appropriation from the city or municipal treasury to carry on the work. Such bills, if enacted into law and carried out, would prove most unfair to the honest and legitimate merchants. No merchant could hope successfully to compete with the Government, especially when the latter sells at cost. The association, therefore, in every instance opposed the enactment of such bills.

Another class of bills that appeared quite generally this year would establish commissions with broad and permanent powers of investigation and regulation, including the power to examine the books and records of merchants, and requiring by subpœna personal attendance and production of books at hearings. Under such proposed laws honest merchants of the country guilty of no wrongdoing whatsoever would be subject to great annoyance and added expense and loss of time. Such added expense would ultimately be borne by the consumer without any corresponding practical advantages to the latter. For those reasons the association opposed such bills, claiming that investigations, if authorized, should be limited as to time and confined to the single purpose of ascertaining what evils, if any, prevail, and of recommending to the legislature legislation calculated to stamp out those evils.

In quite a few states the legislatures seemed to have recognized that the only effective way to remedy any defects in present conditions is to aim directly at the evils. For instance, in some states bills have been introduced making it a crime to destroy wholesome food products for the purpose of creating a scarcity and consequent increase in price. Those bills had the hearty support of your association, and in some cases we have suggested changes in the wording of the bills in order that they might be more effective for the protection of the consumer.

Bills were introduced in three states requiring on the labels of food products the name of the manufacturer instead of the name either of the manufacturer or responsible distributor. None of these bills, however, became law.

Bills to require canned goods to be labeled with the date of packing were introduced in four states, but all failed of passage.

In Minnesota a bill to require canned fish to be labeled with a statement of the vicinity where the fish were caught was introduced, but when arguments were brought to bear showing the difficulties and added expenses of complying with such a law, and that no practical benefits would accrue to the consumer, it failed of passage.

Your committee has been represented at several important hearings at Washington, and engaged in various other activities outside of the legislative field, but we will not trespass upon your time to report at length such activities.

In January of this year your committee and counsel prepared a special legislative bulletin outlining a plan of legislative procedure for the legislative year 1917. In that Bulletin we endeavored to point out to members the best judgment of the association as to what kind of food laws would be most just and fair alike to the consumer, manufacturer, jobber and retailer. We also set forth full arguments against certain classes of food legislation that cannot be supported on any reasonable grounds, and in most instances suggesting other legislation that would be reasonable and fair to all concerned.

The Economic Function of the Jobber*

By Paul H. Nystrom

LAST week while conversing with a former government official and a man unusually well informed upon many matters I was struck by his statement, "This country must do something to prevent the cost of living going higher. The costs of distributing merchandise are much too high. Jobbers alone take a toll amounting to nearly 15 per cent of the price the consumer pays for the goods. What does the jobber do that he should have the right to 15 per cent of the people's expenditures? In my opinion, most of this is wasted, so far as the public benefit is concerned."

Expressions like that quoted have been coming steadily from newspaper editors, magazine writers, farmers' organizations, women's clubs, cost of living commissions, public officers, and even from men engaged in the business of distribution.

The wave of criticism has been helped along both by retailers and jobbers. There is, perhaps, a strong element of vanity in the claim, particularly when it comes from a small retailer, that the jobber's margin is saved and "passed on to the consumer." Jobbers sometimes call themselves manufacturers in order that their representatives may tell retailers that they are producers, and are in position to deliver directly to them. Trade papers going to retailers frequently contain advertising urging retailers to "buy direct and save middlemen's (jobbers') expenses." In the long run, this kind of publicity goes far toward increasing public skepticism for the jobber.

Certain classes of retailers, such as the large mail order houses, chain stores, five and ten-cent systems, and department stores, though far from all, do most of their buying direct now. Not a few manufacturers have developed sales organizations and the necessary machinery to carry their goods direct to retailers. Jobbers themselves have expanded, in some cases, into manufacturing, on the one hand, or into control or ownership of chain stores on the other, seeming, as it were, to seek a safe foothold in one direction or another in case of further elimination.

There is a widespread idea among jobbers that trade changes are under way which may prove disastrous to jobbing as such. Every factor in business must, is forced, to justify its existence at all times, and rightly so, by its output, product or service. So let us approach our analysis of the jobber's service without any presumptions of favor or disfavor from the past.

What is a jobber? To the man on the street the jobber is a large, important commercial house, ranking in stability with the best institutions in the community. Its working capital is relatively large. Its credit rating is excellent. It is an institution whose whole business is to buy goods and resell them to retailers. It is a specialized organization of marketing—a sales organization first, last and always. That is about as far as the average man's notion of a jobbing house goes.

But much more is involved in the work of the jobber that becomes apparent only with a closer view than most people are permitted. The jobber studies the consumer's needs of his trade territory, determines what the people will want, and then sets out months in advance of the actual demand to assemble the goods to satisfy the needs, drawing upon all parts of the world. Assembling the merchandise that people will want next season is an enormous social responsibility when you stop to think about it. A grocery jobber must secure from two thousand to five thousand items. He must buy from hundreds of producers, thousands in some cases. A superficial count of the countries of origin of the merchandise of a single jobbing concern showed that there were over thirty countries represented.

To care for these incoming goods storage must be provided, warehouses that will keep the goods safely and free from deterioration of any kind, whether from weather, temperature, fire, dust, vermin, or what-not. The jobber's warehouse is the source of supply of most retailers for most goods.

It should be kept in mind that the jobber of today is generally and essentially a local institution. Not many grocery jobbers can sell large volumes of goods more than a hundred miles away. The jobber's strong points of service are that he carries a large open stock, from which the retailers within a certain radius can order through salesmen, by mail and wire, and secure the goods in a few hours; that orders can be made up for practically everything the retailer wants and in such quantity as desired.

The advantages of the jobber to the manufacturer or producer are obvious. Months in advance of consumption and in advance of the retailers' orders the jobber places his orders and thus relieves the manufacturer of watching the market and making his own studies of consumers' demand. A great many manufacturers are saved practically all selling expenses by selling their entire product to one or a few jobbers by contract for the season, year, or in large quantities at a stated time.

It is easy to underestimate the value of and the necessity for salesmen. The mail order exceptions merely prove the rule. Even government bonds cannot be sold without salesmen and sales organization.

The jobber's salesman represents a large line of goods co-operatively handled. The manufacturer's representative carries nothing but what his concern makes. The expense for the jobber's salesman, including both salary and expenses, in the grocery line probably does not exceed, on the average, 3 per cent of his sales. In other words, out of one hundred dollars paid by the retailer only three dollars or less is required to pay these salesmen. The manufacturer's representative costs many times that amount. I have never heard of any manufacturer claiming that he could sell his product at a lower selling expense than the jobber.

The credit man of a jobbing house performs a service in stabilizing business that is highly creditable. His knowledge of his customers extends to matters purely personal and of character in detail as well as of business matters. He is able to judge with great precision how far the retailer may extend his business. If jobbers were to eliminate all of the trade with retailers who are classed as bad credit risks by some manufacturers great hardship would ensue in many parts of the country. The line between success and failure is often finely drawn, but the skillful local jobber's credit man stands in much better position to discern it than the distant manufacturer's credit department.

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*Speech before the Liberty Convention of the National Wholesale Grocers' Association.

That the wholesaler performs an economic service to the retailer is clearly evidenced by the fact that more than 80 per cent of the retail merchandise of the country is bought through jobbers. The jobber maintains a constant, open supply close at hand. Orders may be sent in at any time and for smaller quantities than manufacturers care to handle for the retailer. Orders can be made out for a large variety of goods and all will be filled from source of supply. One order for twenty-five items, instead of twenty-five orders to as many manufacturers, means a saving of time, postage, stationery and accounting.

Transportation charges are reduced to a minimum. Both time and money are saved. Most jobbers fill practically all orders on the day they are received. Buying in small quantities of each item makes rapid turnover possible and consequent pro rata reduction of overhead expenses, resulting in higher profit per sale and each profit multiplied by the turnover. Manufacturers as a rule, while making price concessions, require the retailer to buy in larger amounts than the jobber. But what the retailer gains in price he sacrifices in higher overhead, shrinkage and waste.

The small retailer must of physical necessity patronize a jobbing institution. If he were to buy all his goods from individual manufacturers he wouldn't have any time left in which to sell his goods. In dealing with manufacturers the retailer is required to pay out large sums of money, sometimes at inconvenient times, whereas the jobber's times and terms of settlement are regular and may be easily provided for in advance.

There is another important function of the jobber which I have touched upon only lightly so far, and that is the educational help given to the retailer. The jobbers' salesman is frequently the teacher of the retailer, showing what the demand will be, how to prepare for it, what sales methods to use, and so on. This, without doubt, has been an important factor in the success of many retailers.

We may summarize the functions of the jobber to manufacturers, retailers and to the public by stating that he is a specialist in distribution on a large scale. We need specialists in manufacturing. We need specialists in professions. We need specialists in every work, and we need specialists in marketing.

The jobber is the shock absorber of distribution. He helps the retailer and relieves the manufacturer. Changes in demand are interpreted to the manufacturer. The risks of distribution are largely borne by the jobber. In doing these things the jobber stabilizes production on the one hand and keeps the consumer's wants adequately satisfied on the other. Prices are stabilized, speculative gambling minimized. Were it not for the enormous stocks and capacity of jobbers, price variations would be extreme every year.

The jobber is to distribution of merchandise what the Federal Reserve banks are to their respective regions and to the national money market. The weakness of the old money and banking system was that the government prevented banks from handling credit freely through wholesale financial organizations. The national banking system was too much of a "direct from producer to consumer" proposition. There was no shock absorber such as the jobber in distribution of merchandise to take up the violent variations that occurred in the demand for money from time to time.

It should be obvious to anyone with the facts concerning the work that jobbers actually do to see clearly that the jobbing system, or some system very much like it, is absolutely necessary and is here to stay. His precise functions will vary from time to time, as they do now from community to community and from line to line. But the study of market demand in a broad way, the assembling of merchandise in large quantities from the widest sources months and even seasons in advance of the actual demand, the redistribution of these products in such quantities as desired at the precise times when needed, are functions that must be carried on some way by some one.

Gentlemen, from such study of this matter as I have been able to carry on, I can bring to you the assurance that you are not going to be eliminated.

Place Orders for Food Containers at Once.

In order to avoid serious delay and probable food loss during the approaching harvest season, growers and shippers are urged by the United States Department of Agriculture to estimate accurately their needs and place their orders for barrels, crates, hampers, baskets and other containers for food products at once. They should notify manufacturers to begin making deliveries immediately, or at least as soon as their crops are reasonably assured. Larger supplies of containers will be needed this season than usual. Since crops of most perishable products must be moved as soon as ready to harvest, serious financial loss to growers and shippers and failure to save needed crops may result unless orders for packages are placed promptly and shipments begun within the next few weeks.

The Department of Agriculture is in receipt of advice from widely separated parts of the United States that there may be a package shortage this season unless growers and shippers are able to anticipate their needs. It will be difficult for manufacturers to meet the emergency should abnormal demand for additional packages for perishable crops arise in the midst of the harvest season. At that time, it is pointed out, traffic on railroads will be heaviest and shipments may be much delayed when most needed. The responsibility of manufacturers to put forth every reasonable effort to help meet the situation should not be overlooked.

Few persons, specialists of the department say, realize the enormous quantities of barrels, baskets, crates and similar containers that are used each year. Containers for fruit and vegetables are very bulky. It is quite apparent it would be nearly impossible for factories to accumulate in advance and store a supply sufficient for the total needs of the fruit and vegetable crop of the country. The only safe plan is for each grower and shipper to order his supplies now. The department points out that such prompt action will tend to speed up the manufacture and delivery of packages and may save many thousands of dollars' worth of crops.

Food Reviews

CREAM OF RICE.—Manufactured by Cream of Rice Co., 2307 Archer Avenue, Chicago. Packed in pasteboard cartons. Net weight 1 pound 4 ounces. Price 15 cents a package.

Cream of Rice is a cereal food, competing with the proprietary breakfast foods, but also recommended for use in numerous recipes where ordinary head rice is commonly employed. It consists of fifty parts of granulated brown rice to one part of dried milk powder. Its advantages over polished head rice are that it contains the nutritious mineral and fat constituents of the bran, it can be cooked in ten minutes, as against the prolonged operations necessary to prepare whole rice, and the flavor is greatly improved by the addition of the milk powder. Moreover, in strong contrast to the average prepared cereal food, it is actually cheaper than bulk rice. This fact, perhaps, needs some explanation. In the process of polishing rice, a great number of the grains are broken, the proportion running from 25 to 60 per cent. These broken pieces are fully as good for food as the whole grains, but they cannot be sold as polished head rice, and command only about half the price of the latter. The broken rice, granulated to uniform size, for convenience in cooking, is the basis of Cream of Rice.

ANALYSIS OF CREAM OF RICE.

	Unpolished Rice. %	Milk Powder. %	Cream of Rice. %
Moisture	11.88	8.16	11.81
Protein	8.02	33.84	8.53
Fat	1.96	1.73	1.96
Fiber	.93	.....	.91
Carbohydrate	76.05	49.35	75.53
Ash	1.15	6.87	1.26

Rice is a cereal which is only beginning to be appreciated at its true value. During the past year attention has been attracted to it by the shortage of potatoes, and a temporary advantage in price over other starchy foods. Heretofore it has been used very largely as a body for puddings, because of the flat taste of polished rice alone, but this disadvantage does not apply, in the same degree, to brown rice, and still less to Cream of Rice. When the housewife has given the same attention to preparing it in palatable ways as has been given to potatoes, it will undoubtedly be substituted for potatoes, both for variety, and when it is, in proportion to its food value, lower in cost.

The practice of polishing rice, for the purpose of obtaining a pearly white product, has excited the wrath of many dietitians, because polished rice has been proved to be the cause of beriberi. The polishing removes about 12 per cent of the total protein and most of the fat and ash, the latter being important because it consists largely of phosphates. It is now generally held, however, that the real loss is not so much in the mineral salts as in certain not well understood bodies—the so-called "vitamines." As long as rice was mainly eaten with milk or cream this loss was probably not worth the excitement that has been aroused over it, but where rice forms the staple starch food of the diet it is a point that deserves serious thought.

The milk powder in Cream of Rice is added on account of the improvement in the flavor that results, and it may be seen from the analysis that the general character of the food values is only slightly altered by it. It is of some importance to note that the carbohydrate of rice consists of starch, whereas the carbohydrate of milk powder is milk sugar. Milk powder is a product that is rapidly increasing in use. It is made from skimmed milk, partially evaporated in a vacuum pan, and then sprayed into a current of hot air, where it is completely evaporated and falls like snow.

Cream of Rice is an economical, nourishing and very palatable food product and deserves the consideration of anybody who is giving serious thought to the proper nourishment of the family.

OVALTINE.—Manufactured by Dr. A. Wander, Soc. Anon., Berne, Switzerland. American agency, 23 North Franklin Street, Chicago. (An American factory is being established.) Packed in tin packages of ½ pound and 1 pound. Price 50 cents and $1.

Ovaltine is a cocoa flavored concentration of the nutritive constituents of malt extract, milk and eggs. It is in the form of readily soluble granules. In use one or two teaspoonfuls are added to hot water or milk, to make a nourishing food beverage.

ANALYSIS OF OVALTINE.

	Per cent.
Protein	14.2
Fat	8.01
Soluble Carbohydrates	67.9
Mineral Salts	3.76
Organic Phosphorous	1.18

These figures, of course, apply to the preparation as sold. When prepared for use by adding water or milk, the proportion of all these elements would be greatly reduced. The fuel value of a cup of Ovaltine is stated by the manufacturers to be 70 calories.

OVALTINE
CONCENTRATED MALT EXTRACT MILK AND EGGS IN SOLUBLE GRANULES
50¢ & $1.00 TINS
MAKES A DELICIOUS BEVERAGE

Ovaltine has been well known in Europe for the past ten years and is now being used in the convalescing stations of the warring nations, supplied through the English, Swiss and German factories. It combines a well balanced proportion of the essential food elements in a form in which they can be easily absorbed for the general nutriment of the system. Egg yolk contains organic phosphorous compounds, one of which is commonly known as lecithin, and which constitute important elements in the formation of nerve tissue, and for increasing the number of red blood corpuscles.

Ovaltine has been largely used in hospitals because it is a food which can be taken when almost any other would be rejected. In the healthy diet its place is with the malt and malted milk products. The demand for a light and nourishing lunch which can be taken without allowing time for a period of repose for proper digestion is increasing, especially in the great cities. For this purpose Ovaltine has some advantages over anything else now on the market. The presence of the eggs gives the food elements better proportion and increases the calorific value. The cocoa flavor is also very pleasing to some palates.

Ovaltine is a good lunch for the business man who grabs a bite between appointments. It is good for children "between meals" and they like it. It is far superior to the conventional piece of pie as a midnight lunch and fully as satisfying. It is a good "nightcap." Without exaggerating in any way the value of an invalid food to the healthy adult, Ovaltine can truly be considered a valuable addition to the diet of any household that is prosperous enough not to be compelled to buy on the basis of the most calories for the least price.

Book Reviews

AMERICAN PURE FOOD AND DRUG LAWS, By James Westervelt, M. A., of the New York and New Jersey Bars—Vernon Law Book Company, Kansas City, Mo., 1912—1535 pp.—$7.50 delivered.

This book provides a text on American food and drug laws, both Federal and state, that is available for all concerned—lawyers and laymen, manufacturers, dealers and food control officials. In his preface the author calls attention to the newness of the subject and the consequent crudeness of much of the legislation thereon. He also points out that while the public mind is strongly aroused against adulterators and misbranders—and properly so—his experience indicates that the majority of manufacturers and wholesalers of foods and drugs are not willful lawbreakers, but rather that they would prefer to obey the law; and, on the other hand, that although errors are sometimes made by those endeavoring to enforce the law they are almost always made on the side, as they see it, of a stricter enforcement of the law and is an evidence that these officers are striving to do their full duty to the public. The book is very full, comprising the statutes of the United States and of the several states of the Union on the subject of foods and drugs, their manufacture, sale and distribution, whether in interstate or foreign commerce; the administrative rules and regulations of the Federal and state departments and commissioners, and the standards of purity, etc., to which are added chapters on related subjects, such as insecticides, fungicides, commercial feedingstuffs, etc., with full editorial commentaries and numerous citations to Federal and state decisions. The volume is conveniently arranged in chapters and sections under a system of "key-numbers"—each subject coming under the same section number in the treatise on the law of each state as in that on the Federal law—with full cross-references.

THE STORY OF FOODS, By Forrest Crissey, for years a writer on industrial, commercial and agricultural topics for the "Saturday Evening Post." Rand, McNally & Company, Chicago—501 pages. Illustrated—$1.25.

"We are food explorers, ransacking the entire earth for the things with which to satisfy the cultivated appetite of the American consumer." In the comprehensive manner of the large food jobber who made this statement, Mr. Crissey has approached his study of foods. He has indeed ransacked the entire earth for facts about an infinite variety of foods, for in his discussion of this vitally interesting topic he covers points of interest to the teachers of domestic science and of commercial geography who wish to arouse their classes to a keener interest in the source and methods of manufacture of foods, the dietitian searching for food-value data, the manufacturer who is called upon to supply every sort and variety of food, the importer who must know the food possibilities of the whole world, the political economist who is interested in the part the middleman plays in the food industry—in fact, every one who is interested in any phase of the subject. He has personally followed up the source of his information and his facts ring true; he has the genius of a born storyteller and the results of his explorations read like fiction. Added to this he has a unique way of assembling his facts so that they strike home to the reader with new force. Such headings as "Bamboo as a Vegetable," "Holland, the World's International Garden Patch," "Tomatoes First Considered Poison," "An Industry Founded on Waste," "Free Food from Many Waters," and others like them lead the curious reader into a quarry of delightful information. The fact that the national finger is now being pointed at our daily consumption of wheat makes his paragraphs on that subject of particular significance. With the subject of food more prominent in the public mind than it has ever been before, this book should find wide use as collateral reading in every class studying the subject of food.

The Increased Cost of Living Since 1915.

The Bureau of Personal Service of New York has completed a survey to ascertain how the cost of living compares with that of two years ago. They have concluded that the increase amounts to 16 per cent, almost wholly due to the higher price of foods, compiling figures for an imaginary family of five; father and mother, a girl of ten, and two boys, thirteen and six, as follows:

	1915.	1917.
Housing	$168.00	$168.00
Carfare	30.30	30.30
Food	383.81	492.38
Clothing	104.20	127.10
Fuel and light	42.75	46.75
Health	20.00	20.00
Insurance	22.88	22.88
Sundries	73.00	73.00
Total per year	$844.94	$980.41

Rent is not increased in the table, it is explained, because there has been a decrease in immigration and an increase in emigration, resulting in a slight reduction of tenement rentals, which, however, the bureau thinks is offset by increases in other costs not specified. The only increases as the table shows, are for food, clothing, fuel and light. The great increase is for food,—more than $100 a year.

The "sundries" specified in the report include reading matter, $5; recreation, $40; furniture, utensils, etc., $18; church, $5, and incidentals, including soap, $5. The housing allowance contemplates the use of four rooms "to meet the demands of decency."

According to this table food represents approximately 50 per cent of the total outlay of the family while the increase in two years is about 30 per cent. The increase in clothing is 24 per cent and health, which no doubt includes drugs and the like, remains the same.

Municipal Fruit Market for Buenos Aires.

The Municipality of Buenos Aires has been authorized by the executive to install a market of fruit, fish, and vegetables in the government warehouses in the port of the capital. The purpose of this arrangement, which is provided for temporarily by a decree in the Boletin Oficial, is to reduce the price of foodstuffs to consumers.—*Commerce Reports.*

Recent Patents

The following patents of interest to readers of this journal recently were issued from the United States Patent Office. Copies thereof may be obtained from R. E. Burnham, patent and trade-mark attorney, Real Estate Trust Building, Washington, D. C., at the rate of 20 cents each. State number of patent and name of inventor when ordering:

1,227,713. Preparing and depositing apparatus for confectionery. Edward H. Waugh and William J. Swartz, Seattle, Wash., assignors to Automatic Candy Machine Co., same place.

1,227,714. Preparing apparatus for confectionery. Edward H. Waugh and William J. Swartz, Seattle, Wash., assignors to Automatic Candy Machine Co., same place.

1,228,044. Fruit and vegetable grader. Walter G. Palmer, Wallace, Idaho.

1,228,279. Pitter. Lisle T. Argo, Los Angeles, Cal., assignor to Curtis Olive Corporation, Bloomington, Cal.

1,228,311. Fish-cleaning mechanism. Edward P. Follett, Duluth, Minn.

1,228,550. Mixing and kneading machine. Frank Goger, Paterson, N. J.

1,228,640. Apparatus for preparing food. John D. Belton, Crowley, La.

1,228,910. Process for the manufacture of dry crystals of sugar and other crystalline substances. Jean C. Griere, Padua, Italy.

1,229,052. Coffee product and method of making the same. William J. Ewing, Roland Park, Md., assignor to The Coffee Products Co.

1,229,188. Dough-dividing machine. Paul S. Ward, Cincinati, Ohio.

1,229,190. Process of precipitating sugar. Alphonse M. Duperu, Oxnard, Cal.

1,229,397. Process and apparatus for drying edible pastes. Albert M. Austin, Piermont, N. Y.

1,229,472. Process of curing, packing and preserving fish. Edwin P. Julien, Seattle, Wash.

1,229,555. Method of treating fish. Isidor J. Warner, Lake View, N. Y.

1,229,592. Process of preserving eggs. Francisco Espaillat de la Mota, San Pedro de Marcoris, Dominican Republic.

1,229,656. Composition of beverages. Nathan Rosewater, Cleveland, Ohio.

1,229,671. Coating-machine. William J. Swartz and Edward H. Waugh, Seattle, Wash., assignors to Automatic Candy Machine Co., same place.

1,229,919. Separation of casein and albumin from creamery-sewage. George Ebrill, Blackrock, and Thomas Kiersey, Dublin, Ireland, assignors to Ebrill's Process, Limited, Dublin, Ireland.

1,230,184. Coffee substitute. William A. Lorenz, Hartford, Conn.

1,230,346. Ice-cream freezer. Theodore L. Valerius and Olaf Larsen, Fort Atkinson, Wis., assignors to Creamery Package Mfg. Co.

1,230,364. Process of preparing or treating cocoanut and product obtained thereby. Franklin Baker, Jr., Philadelphia, Pa.

1,230,365. Process of preparing or treating cocoanut. Franklin Baker, Jr., Philadelphia, Pa.

1,230,366. Process of preparing or treating cocoanut and product obtained thereby. Franklin Baker, Jr., Philadelphia, Pa.

1,230,452. Composition of matter for preparing foods and process of making same. Harvey W. Wiley, Washington, D. C.

1,230,455. (Chocolate) coating apparatus. Alonzo L. Bausman, Springfield, Mass.

1,230,479. Self-preserving acid milk product and process of making the same. William P. M. Grelck, Evanston, Ill.

1,230,817. Food. Stewart R. Barnett, Albany, Wis., assignor to Crary Brokerage Co., Waukesha, Wis.

Hoover Promulgates Plans for Popular Food Saving.

The food economies which Herbert C. Hoover of the Food Administration desires to suggest to the American people were officially promulgated recently.

They constitute the cardinal principles of the food campaign and are set forth in clear type on a small card in terms so definite and concise that all will know exactly what and how to save.

The food administration card will soon hang in every American kitchen and its directions followed with scrupulous care by the home makers of the land. Already the appeal has met with a generous response. The information is at hand that a million food pledges have already been signed.

A reading of the card, which is printed in full below, shows that to follow its suggestions entails no real hardships. The rules are concise and simple. Less wheat, meat, milk, fats, sugar and fuel. More fruit, vegetables, foods that are not suitable to be sent to camps or firing lines. No limiting the food of growing children; not eating by anyone of more food than is needed. Buying food that is grown close to the home.

Is any of this too hard?

UNITED STATES FOOD ADMINISTRATION.

Win the War by Giving Your Own Daily Service.

Save the Wheat.—One wheatless meal a day. Use corn, oatmeal, rye or barley bread and non-wheat breakfast foods. Order bread 24 hours in advance so your baker will not bake beyond his needs. Cut the loaf on the table and only as required. Use stale bread for cooking, toast, etc. Eat less cake and pastry.

Our wheat harvest is far below normal. If each person weekly saves one pound of wheat flour that means 150,000,000 more bushels of wheat for the Allies to mix in their bread. This will help them to save democracy.

Save the Meat.—Beef, mutton or pork not more than once daily. Use freely vegetables and fish. At the meat meal serve smaller portions and stews instead of steaks. Make made-dishes of all leftovers. Do this and there will be meat enough for everyone at a reasonable price.

We are today killing the dairy cows and female calves as the result of high prices. Therefore, eat less and eat no young meat. If we save an ounce of meat each day per person, we will have additional supply equal to 2,200,000 cattle.

Save the Milk.—The children must have milk. Use every drop. Use buttermilk and sour milk for cooking and making cottage cheese. Use less cream.

Save the Fats.—We are the world's greatest fat wasters. Fat is food. Butter is essential for the growth and health of children. Use butter on the table as usual but not in cooking. Other fats are as good. Reduce use of fried foods. Soap contains fats. Do not waste it. Make your own washing soap at home out of the saved fats.

Use one-third ounce less per day of animal fat and 375,000 tons will be saved yearly.

Save the Sugar.—Sugar is scarcer. We use today three times as much per person as our Allies. So there may be enough for all at reasonable price; use less candy and sweet drinks. Do not stint sugar in putting up fruit and jams. They will save butter.

If everyone in America saves one ounce of sugar daily it means 1,100,000 tons for the year.

Save the Fuel.—Coal comes from a distance and our railways are overburdened hauling war material. Help relieve them by burning fewer fires. Use wood when you can get it.

Use the Perishable Foods.—Fruits and vegetables we have in abundance. As a nation we eat too little green stuffs. Double their use and improve your health. Store potatoes and other roots properly and they will keep. Begin now to can or dry all surplus garden products.

Use Local Supplies.—Patronize your local producer. Distance means money. Buy perishable food from the neighborhood nearest you and thus save transportation.

GENERAL RULES.

Buy less, serve smaller portions.

Preach the "Gospel of the Clean Plates."

Don't eat a fourth meal.

Don't limit the plain food of growing children.

Watch out for the wastes in the community.

Full garbage pails in America mean empty dinner pails in America and Europe.

If the more fortunate of our people will avoid waste and eat no more than they need, the high cost of living problem of the less fortunate will be solved.

Herbert Hoover,
United States Food Commissioner.

Professor Hunziker of Purdue Becomes Manufacturing Manager of Large Butter Company.

Prof. O. F. Hunziker, Chief of the Dairy Department, Indiana Agricultural Experiment Station, and Professor of Dairy Husbandry, Purdue University, Lafayette, Ind., has tendered his resignation, to become effective September 1, 1917.

October 1, 1916, Prof. Hunziker was granted a year's leave of absence to study commercial buttermaking and became associated with the Blue Valley Creamery Co. Under his direction the Blue Valley Creamery Co. installed one of the most complete dairy laboratories in the country, where Prof. Hunziker is carrying on many scientific investigations which will be of inestimable value to the buttermaking industry. He has now accepted a permanent position with the Blue Valley Creamery Co. and will be manager of the manufacturing department at all their factories and will superintend the investigations made in the dairy laboratory.

His resignation from his responsible college position was inspired by the realization that by devoting his entire energies to the solution of dairy manufacturing problems he can be of greatest service to the industry. He has decided that he can best investigate these problems by studying them in a commercial way, where scientific facts may be blended with the practical.

Professor Hunziker is recognized as an authority on dairy bacteriology and dairy chemistry. Born in Zurich, Switzerland, he spent his early life working on dairy farms and graduated from the Strickhof Agricultural School at Zurich in 1892.

He became a resident of the United States in 1893 and graduated from Cornell University in 1900 and took a post graduate course in dairy bacteriology and dairy chemistry.

After graduating at Cornell he spent several years in a large condensed milk plant, studying all depart-

Report of Cold Storage Holdings of Food on June 1.

Creamery Butter.

Reports from 292 cold storages shows that their rooms contain 8,942,120 pounds of creamery butter, while on May 1, 308 storages reported 2,701,285 pounds.

American Cheese.

Reports from 350 cold storages show that their rooms contain 10,070,577 pounds of American cheese, while on May 1, 366 storages reported 7,620,160 pounds.

Eggs.

Reports from 369 cold storages show that their rooms contain 4,548,758 cases of eggs, while on May 1, 380 storages reported 1,896,926 cases.

Frozen Eggs.

Frozen egges have been added to the list of commodities on which storage reports will be issued regularly hereafter. Reports from 118 cold storages show that their rooms contain a total of 6,818,981 pounds of frozen eggs June 1, 1917.

Frozen Poultry.

The total stocks of frozen poultry reported by 179 firms on June 1, 1917, amounted to 54,834,191 pounds. The reports of 107 firms show stocks of 38,521,441 pounds on June 1, 1917, as compared with 6,559,048 pounds on June 1, 1916, an increase of 487.3 per cent.

Frozen Beef.

The total stocks of frozen beef reported by 255 firms on June 1, 1917, amounted to 100,710,862 pounds, while the total stocks reported by 287 firms on May 1, 1917, amounted to 109,921,731 pounds.

Cured Beef.

The total stocks of cured beef reported by 280 firms on June 1, 1917, amounted to 30,149,025 pounds, while the total stocks reported by 302 firms on May 1, 1917, amounted to 29,804,466 pounds.

Frozen Pork.

The total stocks of frozen pork reported by 232 firms on June 1, 1917, amounted to 68,478,034 pounds, while the total stocks reported by 267 firms on May 1, 1917, amounted to 69,556,288 pounds.

Dry Salt Pork.

The total stocks of dry salt pork reported by 360 firms on June 1, 1917, amounted to 191,554,884 pounds, while the total stocks reported by 387 firms on May 1, 1917, amounted to 210,707,102 pounds.

Sweet Pickled Pork.

The total stocks of sweet pickled pork reported by 448 firms on June 1, 1917, amounted to 364,135,285 pounds, while the total stocks reported by 454 firms on May, 1917, amounted to 350,508,999 pounds.

Lard.

The total stocks of lard reported by 414 firms on June 1, 1917, amounted to 64,440,531 pounds, while the total stocks reported by 410 firms on May 1, 1917, amounted to 58,859,183 pounds.

Lamb and Mutton Frozen.

The total stocks of frozen lamb and mutton reported by 124 firms on June 1, 1917, amounted to 3,500,010 pounds, while the total stocks reported by 158 firms on May 1, 1917, amounted to 4,637,980 pounds.

ments of the business and established a dairy laboratory for the investigation of condensed milk problems. He is the author of "Condensed Milk and Milk Powder," the text book of the condensed milk industry.

He was called to become a member of the faculty at Purdue University in December, 1905, where he has gained a world wide reputation as an instructor and investigator. He attended the International Dairy Congress at Stockholm, Sweden, in 1911, as a delegate from the U. S. Department of Agriculture, and during the years 1910, 1911, 1912 and 1913 served as President of the Official Dairy Instructor's Association.

While at Purdue he published many bulletins which have been of great value to the dairy and creamery industry. Among these may be mentioned "Testing Cream for Butterfat" (which has revolutionized and standardized the glassware and method used for testing cream for butterfat), "A Study of the Chemical Composition of Butterfat and its Relation to the Composition of Butter," "Moisture Control of Butter," "The Hand Separator and Gravity Methods of Skimming," "Why Cream Tests Vary," "Accuracy of Cream Testing Scales," "Cream Cooling Tanks," etc. Pasteurization experiments have been carried on for the past five years and manuscript has been prepared for a bulletin on the subject of pasteurization.

In continuing his investigational work with the Blue Valley Creamery Co. Prof. Hunziker does not intend in any way to relinquish his contact with the scientific problems which are a part of his life's work. He is at present preparing the manuscript for a text book on "Creamery Buttermaking" which will be ready for publication in a few months.

Feed Manufacturers the Original Conservationists.

The American Feed Manufacturers' Association met in Chicago on June 14th and 15th and spent an interesting two days in discussing ways for conserving the supply of grain by the utilization of by-products. President Sherman T. Edwards took the proud position that the feed manufacturers were the real original conservationists, and have gradually succeeded, often in the face of hostile legislation, in marketing by-products formerly wasted as animal foods worth millions of dollars.

It is not many years ago that bran was largely a waste material, and gluten food was piled up in the country to rot. Molasses, of which hundreds of thousands of tons are fed to horses and cattle, was run into the streams, and constituted a menace to the fishing interests.

Oats have long been considered the best feed obtainable for horses, but it is well known that a large portion of them pass through the body without being digested. A feed manufacturer by the simple process of rolling or crushing oats to be mixed with cracked corn increased the digestibility by 20 per cent, and saves an actual weight of 900 pounds of oats per horse per year.

Brewers and distillers leave as a residue of the grain that they use about 30 per cent of the total weight, which contains the protein and the fat. These grains have become a very valuable source of increased milk production. An average increase of five pounds of milk may be made by feeding only three pounds of the product instead of straight grains.

Calf meal is a milk substitute. Before its discovery dairymen often considered the milk more valuable than the calf, and the calf was killed at birth. Recently W. Scott Matthews established the first calf nursery at Centralia, Ill., and over 3,000 calves have been handled, and sold to boys and girls who agree to raise them.

Egg-producing feeds, made largely from by-products, have been largely instrumental in increasing the standard egg production from 80 per year to 150 per year. The two-hundred-egg hen is becoming common, and the three-hundred-egg hen has been produced.

Buttermilk, to the extent of 50,000,000 pounds, will be dried this year to be used largely in fattening milk-fed chickens. Buttermilk is produced in such quantities by large creameries that it is impossible to distribute it successfully, and much of it is wasted.

The use of weed seeds in manufactured feeds amounts to millions of dollars annually, and it is predicted that the harvesting of certain kinds will become one of the recognized sources of income on the farm.

In concluding his address, President Sherman said, "It is a good thing, gentlemen, to realize that the success of the business in which we are engaged is measured solely by the material benefit that we give. What we will be able to develop in the way of conservation in the next few years, may be gauged by what we have accomplished in times less stirring. The United States, with the Allies, will win the war, and the American Food Manufacturers' Association may rightly consider itself a factor in that victory."

Master Bakers Act to Stem Bread Waste in Homes.

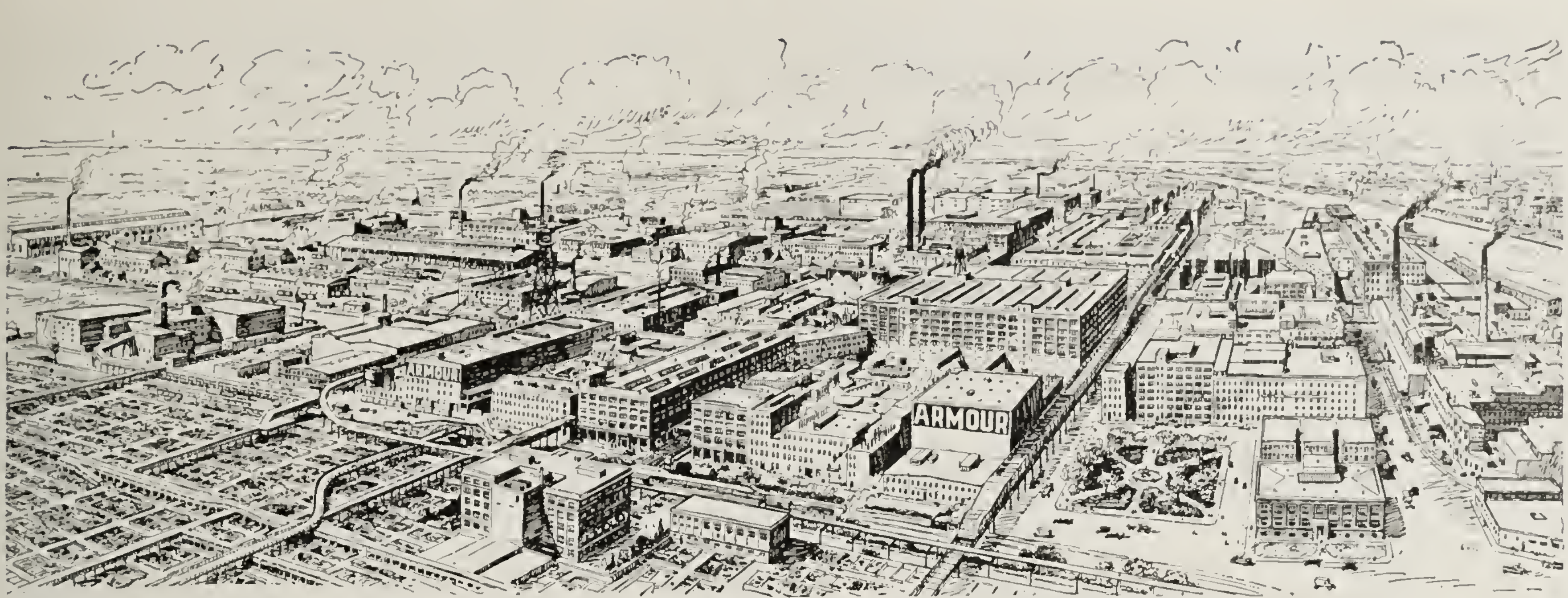
Having organized and set in motion the machinery which on July 10 will result in the elimination of the waste occasioned by the return of unsold bread to the wholesale baker, the bakers of the United States are preparing to take the second step in their co-operation with Herbert C. Hoover in the elimination of household waste in the matter of bread.

Inquiry at several sources where such information is supposed to be available revealed the fact that neither the government nor scientists have any information regarding the extent of waste of bread in the home.

The National Association of Master Bakers sent out telegraphic inquiry to a number of domestic science experts and received a widely varying set of answers. Mrs. Ida C. B. Allen, New York, editor and lecturer on home economics, was the only person who would place a commercial value on it. She has figured the annual loss at $20,000,000. It is to conserve this amount of breadstuffs that the National Association of Bakers is launching a nation-wide campaign of education with the direct endorsement of Mr. Hoover.

Dr. H. E. Barnard, state food and drug commissioner of Indiana says the wastage of bread is daily decreasing, but that recently it might have been figured on the basis of two slices to the loaf. This is on the assumption that few eat the end crusts of the loaf. This estimate is considered too high by most people and would run the money value of the waste in excess of $50,000,000.

Miss Isabel Bevier, director of household science department, University of Illinois, Urbana, Ill., places the estimate at two slices per day per family. Miss Martha Van Rensselaer, head of the home economics department, Cornell University, Ithaca, N. Y., urges a nation-wide survey in order to get the data. Miss Abby Marlatt, head of home economics department,



ARMOUR AND COMPANY'S CHICAGO PLANT

IN uncertain times like the present, the importance of a trade-mark on foods takes on increased significance. For, it definitely fixes the responsibility for their origin and, by putting back of them the reputation of their manufacturers, becomes an assurance to consumers of sustained quality. The Armour Oval Label has behind it the jealously guarded Armour reputation of fifty years' standing—far too much at stake for the future to permit of anything but the very highest grade being sold under it.

Armour's QUALITY PRODUCTS

ARMOUR AND COMPANY
UNION STOCK YARDS, CHICAGO

1648

University of Wisconsin, believes the bread waste in families comparatively small and urges the general use of bulletins and lectures to reach the housewife with instructions for employing leftovers. C. F. Langworthy, chief of home economics bureau, U. S. Department of Agriculture, and Mrs. Henrietta Calvin, Bureau of Education, Washington, D. C., both state that the government is without any information on the subject.

The National Association of Bakers will prosecute further investigation of the domestic wastage in operating their 200 local organizations which have been built up at the suggestion of Mr. Hoover, and will endeavor to effect economies amounting to many millions in the use of bread now altogether wasted.

Analysis of Canned Salmon.

During the past year the South Dakota Food and Drug Department has analyzed a considerable number of samples of canned salmon for the purpose of determining, if possible, whether inferior grades of the fish were substituted for the better grades, and for the further purpose of discovering some method of identifying the different kinds of salmon by chemical analysis. It was found that the net weight of the contents is generaly understated on the label, the greatest excess in weight being 18.7 per cent and the greatest shortage 3.1 per cent The amount of liquid in the cans is an important factor in computing the value of the contents. The free liquor varies from 3.95 per cent to 26.54 per cent, the greater percentages being generally found, but not always, in the cheaper grades. The total moisture varied from 52.32 per cent to 69.87 per cent, and was in inverse proportion to the fat, which ran from 17.68 per cent to 6.36 per cent. The protein seemed to be fairly constant. The average was 19.34 per cent, and the extremes 15.66 and 22.45 per cent. The total phosphoric acid varied from 4.2 to 9.8 per cent.

Rice a Convenient Starchy Food.

Although rice has been recognized as a good food in the United States since early colonial times, and in some form or other is generally liked in all parts of the country, it has not been given so important a place as a staple article of diet as it deserves, say specialists of the U. S. Department of Agriculture. In some sections rice has been used for the most part as a breakfast cereal or as a foundation for pancakes, croquettes, or desserts. In regions where it is grown, however, it is used principally as a vegetable like potatoes; and in place of dishes like macaroni and spaghetti, combined with cheese and similar foods. This use well may be extended to regions where rice is now used chiefly for making puddings and other desserts.

When rice is used in quantity in the diet, particularly as a substitute for potatoes, care should be taken to supply fruits and vegetables generously in order that the mineral substances which the body needs may be provided. Rice is nutritious and palatable and digests well. It may be cooked quickly, without the necessity of troublesome preparation, and without waste. Taking everything into account, rice well may be given a more important place in the diet at this time.

Supremacy of Maine Corn.

"The American Grocer" in discussing a claim that Minnesota canned corn is fully equal to Maine corn, says:

"Similar claims have been made all over the United States, yet Maine maintains its prestige and reputation. Ofttimes certain packs by expert canners in Massachusetts, Vermont, New York, Illinois, Maryland have been a pretty close match with Maine corn. When a poor season is encountered Maine packers have been heavy users of fancy Maryland corn. Allowing all claims there is one thing that gives Maine corn supremacy, and that is the peculiar tenderness of the skin of the kernel, which leads expert buyers to say: 'I can tell Maine corn with my eyes shut.' Maine rarely carries a case of corn from one season to the next, whether the output is over a million cases or half that quantity. That tells the story."

THE COLUMBUS LABORATORIES

31 N. State Street **CHICAGO, ILL.**

DEPARTMENTS: Food, Commercial, Medical, Milling and Baking.
Expert Staff of Consultants. Court and Medico-Legal Work.

The Sanitation and Hygiene Institute
7 East 42nd Street, New York City

Specialists in Food Regulations and Standards. Investigations to improve Processes. Laboratory Examinations and Sanitary Surveys.

Russell Raynor **Benjamin Jurist**

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According to Department of Agriculture Bulletin No. 118: Apply 0.62 pounds Borax to every 10 cubic feet of manure. Apply Borax particularly around edges; sprinkle with 2 or 3 gallons of water. This treatment should be repeated with each addition of fresh manure. Flies lay their eggs in fresh manure. Borax prevents their hatching.

PACIFIC COAST BORAX COMPANY
NEW YORK CHICAGO OAKLAND

Second Hand Whiskey Barrels for Sale in Any Quantity

Also Wine Barrels and Half Barrels

Car Lot Shipments on Short Notice

Brueckmann Cooperage Company
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Staff Correspondence

Washington, D. C.

FOOD CONTROL.

THE passage of the Lever Bill, H. R. 4961, was marked by excitement and expressions of bitterness rarely witnessed in the halls of Congress. This measure provides for the delegation of powers to the president of the United States which Senator Reed, of Missouri, declared on the floor of the Senate have never been vested in the chief magistrate of this nation or even in any monarch of the old world. The sentiment abroad in the country, however, had become so aroused by the high cost of living that there was no stemming the tide; the vote in favor of granting extraordinary powers to the president was almost unanimous. No arguments could avail against the contention of administration leaders that food in Germany, encircled by an iron band of bullets and bayonets, is selling to the consuming public for less than in the United States. This argument was effectively used in support of the contention that a "food dictator" is absolutely necessary, no matter what the constitutional limitations on the power of the executive may be in times of peace.

The Lever bill, which has been substituted for the Chamberlain bill in the Senate as the basis for food legislation, provides for the establishment of governmental control of necessaries of life and of all processes, methods and activities relating thereto, according to the report of the House Committee on Agriculture accompanying it when the bill was submitted to the House. There can be no doubt as to the intent of Congress, therefore, in drafting and enacting this measure into law. The administration justifies it as a war emergency measure, based on powers conferred upon Congress by the Constitution. The proposed law is intended to operate throughout the United States irrespective of state lines. In other words, the authority of the commander-in-chief of the army and navy shall be absolute everywhere within the confines of the nation's boundary.

Perhaps the most important amendment adopted by the House was one offered by Representative Lenroot of Wisconsin, confining the application of the proposed law to those articles specified in the bill, namely, "foods, feeds and fuel and articles required for their production called necessaries." The bill as originally drafted was far from clear as to its scope. It specified clothing and used the word "necessaries" in such a general way as to leave an open question as to whether or not there was any limitation as to what might be included under the head of "necessaries." Manufacturers of drugs and medicines were especially concerned on this point because they had insisted before the House Ways and Means Committee and the Senate Finance Committee that drugs and medicines are necessaries, when opposing the proposed tax imposed upon proprietary medicines.

WAR TAXES.

While the food legislation is overshadowing everything else, the Senate Finance Committee has not entirely ceased its labors in connection with the general revenue bill, being constructed for the purpose of raising nearly $2,000,000 for war expenses, in addition to the billions voted in bonds. President Wilson's order that food legislation should take precedence over revenue legislation because of the approach of the harvest

Staff Correspondence

season had the effect, however, of causing the Finance Committee to "slow up" on the revenue bill perceptibly and not nearly so much progress has been made on it by the committee since the food control bill was given the right of way in Congress than before. One comforting circumstance developed when it became known at the Capitol that it is the intention of administration leaders to perfect the revenue bill as far as possible in committee and make it least objectionable to the business interests of the country so that when it is reported to the Senate the debate on it will not be protracted throughout the summer. Whether the administration will succeed remains to be seen.

PRIORITY FOOD SHIPMENT BILL.

On June 16th the administration's priority food shipment bill passed the Senate. The measure delegates power to the president of the United States to direct that shipments of foodstuffs and other articles necessary for the successful prosecution of the war have preference in transportation. It is thought that this bill when enforced as law will have much to do with reducing the high cost of living inasmuch as high prices of foodstuffs and fuel have been in part attributed to inadequacy of transportation facilities and congestion of traffic, as a result of which the distribution of food and fuel has seriously suffered.

An article published in a western daily stated that a family had escaped what threatened to be a severe attack of ptomaine poisoning following the serving of canned tomatoes.

An investigation made by the bureau of publicity of the National Canners' Association showed that, in the opinion of the father, the illness was caused by lemon pie and that the attending physician had diagnosed the case as septic poisoning.

The bureau has taken the matter up with the editor, requesting him to publish a corrected statement.

Arkansas.

Commissioner John H. Page has been appointed to the post of chairman of the State Central Council of Agriculture.

California.

Chapter 487 of the California Laws of 1917 makes it a misdemeanor when selling or attempting to sell goods, to represent "willfully and falsely" that they are the product of any dealer, manufacturer or producer other than the one from whom they actually came. Penalty: a fine of $50 to $300, or imprisonment for 20 to 90 days, or both. It is provided that one may sell under his own brand the product of another manufacturer if he has the latter's written consent.

The bill had the support of the legislative committee of the American Specialty Manufacturers' Association.

It differs from the proposed statute on the same subject which has been endorsed by the Associated Advertising Clubs of the World in that it makes substitution a crime, while the latter would merely give the aggrieved manufacturer a right of action against the substitutor for a penalty of $200 for each offense.

E. L. J. Lea, director of the California Bureau of Foods and Drugs, has been appointed on the Auxiliary Committee of Food Conservation of the State Council of Defense. In April the department conducted a survey of the available food staples in the state with a view to determining whether there was a shortage or surplus of the various foods.

Yes
COTTOLENE does make delicious biscuits.

Yes
The flavor does compare well with biscuits made with butter.

Yes
COTTOLENE biscuits do brown nicely.

Yes
COTTOLENE does make a crisper crust.

Yes
COTTOLENE does cost much less than butter.

Yes
You do use one-third less shortening when you use COTTOLENE.

Yes
It does cream better when mixing the dough.

Yes
COTTOLENE is wholesome.

Yes
COTTOLENE does make delicious cake too. And of course you know it is fine for frying.

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"SPECIAL"

OLEOMARGARINE

The Taste Is the Test

Where Quality and Economy Meet

Gives better satisfaction than 75 per cent of butter used. Cost one=third less. Try it and be convinced. Order a package from your dealer.

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always guarantees, that the food product bearing it is of the finest quality — and prepared for particular people.

Only four hams out of ten earn the Majestic Label.

Wilson's Majestic Bacon is really the heart of the finest pork sides.

The U. S. Government certifies to the purity and wholesomeness of Wilson and Co.'s products. Look for the Government Inspection mark.

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Carnation Milk is fresh, clean, sweet cows' milk, evaporated to the consistency of cream, sealed air-tight in cans and *sterilized* to keep it pure and safe. Nothing is taken out but water; nothing whatever is added.

You will find Carnation Milk most satisfactory for cooking and baking, for coffee, ice cream, etc. It is the only milk supply your home needs.

Free Recipe Book

"The Story of Carnation Milk," our free, illustrated recipe book, contains over 100 recipes for plain and fancy dishes. Sent free to *you* upon request. Carnation Milk Products Company, 765 Stuart Building, Seattle, Wash.

Remember — Your grocer has it!

"From Contented Cows"

Staff Correspondence

Colorado.

The State War Council has approved a plan for the systematic storage, transportation and marketing of Colorado's food crops, which are estimated to have a value of $120,000,000. The plan is designed to insure each community the necessary supplies for its own needs and to aid producers to sell the surplus in the East to the best advantage. Financing of warehouse receipts will be a development of the work.

Connecticut.

Two more members of the faculty of the Connecticut Agricultural College have transferred their offices to the office of the Connecticut Committee of Food Supply. They are Miss E. M. Sprague, who will have charge of boys' and girls' club work, and Glenn H. Campbell, who will have charge of publicity for the committee.

This makes four members of the college staff who are working with the Committee of Food Supply, I. G. Davis and Guy C. Smith having been transferred some time ago.

Miss Millicent Sears, a graduate of Teachers' College of Columbia University, will have charge of the preparation of the various bulletins and other publications which the Connecticut Agricultural College will put out during the summer for the Connecticut Committee of Food Supply. Miss Sears has had several years of successful experience in teaching home economics. She began work June 10.

Indiana.

State Commissioner H. E. Barnard has issued a statement as to what grocers can do to avoid a food crisis, the text of which is as follows:

1. Encourage the use of staple groceries, especially the cereals, such as rolled oats, rice, corn meal, hominy grits, macaroni, the legumes such as dried peas and beans, dried fruits such as prunes and raisins, the sugars, including molasses and glucose.

These foods are both cheap and nutritious. They must be used in large quantities and instead of more costly and less nutritious foods.

2. Stock and urge the sale of cooking oils and fats, instead of high-priced butter. Corn oil, cottonseed oil, lard compounds, uncolored oleomargarine, beef suet, all are very high in food values, wholesome and good.

3. Stock lightly with fancy groceries, such as condiments, preserves, dessert preparations, tinned biscuits, olive oils and prepared foods that can be bought in bulk and cooked at home. These foods furnish the least nourishment for their cost. Their use should be discouraged until the present crisis in the food supply is past.

4. Stock lightly with imported products. Do not buy or sell sardines from Norway when domestic sardines are available at much lower prices; cease selling expensive imported cheese, olive oil and fancy fruits.

5. Stop pushing the sale of high-priced candies. There is more food in a pound of sugar than in a dollar box of candy. Confectionery is a luxury that both thrift and patriotism will deny us.

6. During the present food shortage discourage overbuying of staples that will keep in the grocery as well as in the home. This is no time to speculate in foodstuffs.

The grocer may easily change the buying habits of his customers and help them to choose wisely that they may feed their families better and more cheaply.

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Paper Can Machinery
Automatic Tin Can Machinery
Sanitary Can Machinery
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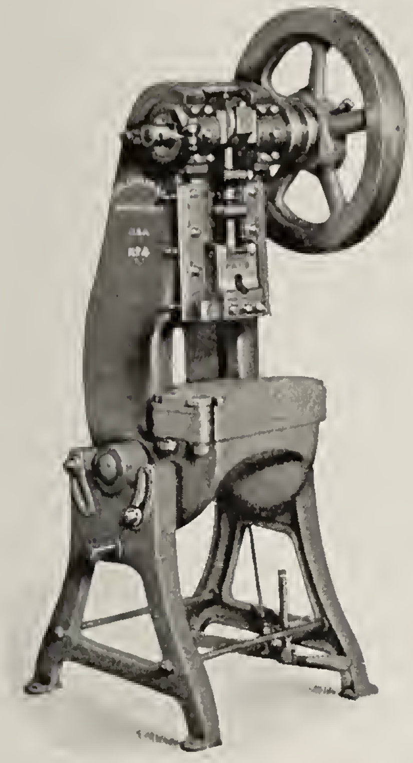

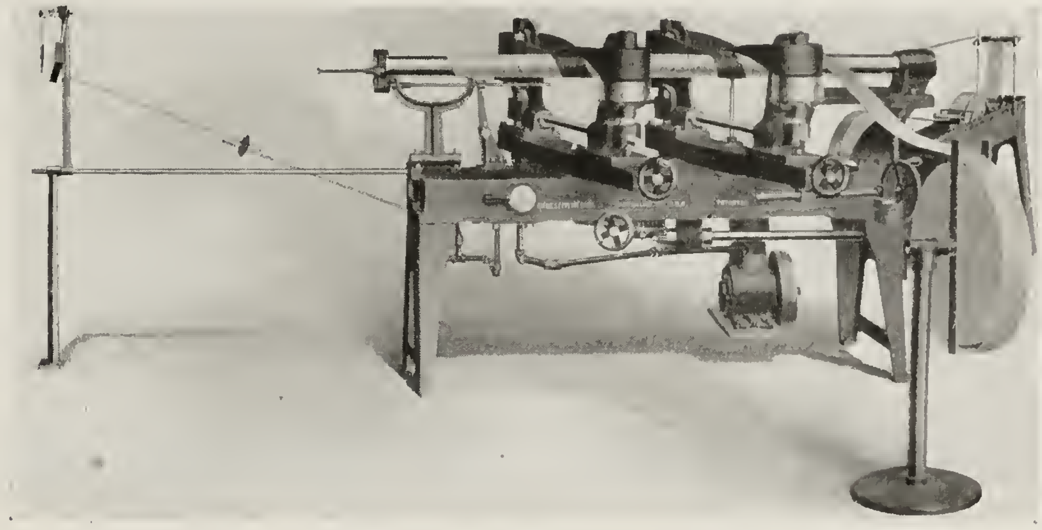

In Richmond two stalls in the city market have been reserved by the municipal authorities so that the city can enter into direct competition with the market house keepers in the sale of foodstuffs.

In compliance with an order of the State Board of Health, all persons engaged in handling foods were compelled to present health certificates before July 1. Certificates are good for one year. Any registered physician can make out the certificate on the blanks furnished by the state. These are listed with the local boards of health and the originals filed at Indianapolis.

Indianapolis has recently passed an ordinance making the pasteurization and clarification of milk compulsory in that city. The standard for milk is fixed to conform to that of the state, and the standard for buttermilk requires that such milk be actually produced in the process of butter making, and shall not be skim-milk artificially soured. Such milk must be known by a distinctive name. The total solids must be not less than 8.5 per cent. Skimmed milk must contain not less than 9.5 per cent total solids, and not less than 8.5 per cent total solids, not fat.

A large part of the work of the State Council of Defense in food production and conservation has devolved on Dr. H. E. Barnard, State Food Commissioner. He is chairman of the Committee on Food Supply and Conservation, and also of the Special Committee on Food Production and Conservation. Claude V. Stainsby has joined the staff of the department as food inspector.

Dr. E. J. DuBois, City Bacteriologist, First Lieutenant in the Medical Reserve of the U. S. Army, has been called into service at Ft. Benjamin Harrison.

Kansas.

A large part of the energies of the State Food Department, of which S. J. Crumbine is the head, are being directed towards the conservation of foods. Much publicity against food waste is being sent out, and the consumer is being educated to make the most of all provisions that are brought into the household. A resolution has been passed against the return of stale bread from unsold grocery stocks.

Kentucky.

J. O. LaBach, Food Commissioner of Kentucky, has tendered to the Federal government the use of the staff and laboratories of his department. The inspection force is actively co-operating with the Federal forces in the conservation of foods. Four members of the department have resigned to join the military forces of the nation.

Michigan.

A state Weights and Measures conference was held at the Hotel Tuller in Detroit last month. Michigan senators and representatives were petitioned to give every aid to President Wilson's food control measure. A paper advocating a standard weight loaf of bread was read by Edward A. Frair of Flint. He said that an investigation showed that Michigan was paying more for bread than the average price throughout the country. In the state the price varies considerably. Clare paid six cents for 11 ounces, and twelve cents for 22 ounces. In Flint the price was ten cents for 11 ounces and fifteen cents for 20 ounces. Detroit pays sixteen cents for 32 ounces, and Lansing pays twenty cents for the same sized loaf. Ed. C. Rogers of Lansing said that the large

WARD'S
TIP-TOP
BREAD

is bread you can eat with a sense of safety because it is pure, clean and the standard of quality wherever sold.

It is pure, because only the highest grade bread making materials which money can buy are used in making it and the process under which it is made is the most advanced and scientific known to the baking industry.

WARD'S TIP-TOP BREAD is Clean because it is made in bakeries which are models of bread-making cleanliness. Every loaf is wrapped in waxed paper by MACHINE.

Hence, when you buy it you are guaranteed these three food manufacturing virtues—Quality, Purity and Cleanliness.

WARD BAKING COMPANY

THERE IS
CLEANLINESS, HEALTH
INSURANCE, ECONOMY
AND CONVENIENCE IN

Our PET
BRAND
Evaporated
Milk

The Standard of the World

Wins and Holds Trade on
account of its Superior Quality

PREPARED BY
Helvetia Milk Condensing Co.
HIGHLAND, ILLINOIS
ORIGINATORS OF EVAPORATED MILK

Staff Correspondence

bakers had been paying $9.00 a barrel for flour, under contracts that will run until August. He predicted that they would have the contracts renewed at about the same price. "It is a waste of sympathy to pity the bakers who are paying $15.00 a barrel for flour," he said, "because they are not paying it." George F. Austin, of Detroit, advocated the testing of milk bottles. He said that more than 47,000 short measure milk bottles had been found in Detroit during the past year.

The Food Preparedness Committee in Lansing has completed a card index of 10,000 men, with previous agricultural experience, who are willing to work in the harvest fields this Fall. It is not anticipated that many of them will be required, since the farmers have made independent arrangements for the necessary assistance in most cases.

Reports from Owasso state that the egg storage houses are going slow on egg buying owing to the uncertainty as to the action of the government in the regulation of cold storage holdings. It is feared that the winter prices will be fixed so low as to make the buying of eggs for storage at present prices unprofitable.

Dr. James W. Inches, head of the health department of Detroit, has recently issued new regulations for the sale of horseradish. Two members of his department are now in the United States army in France, and twenty other employes are in the service of the army in this country.

Missouri.

The Missouri College of Agriculture is advising the preparation of lard substitutes for beef suet. A recent bulletin says:

"Lard is 28 cents a pound. Many folks object to paying that much but realize that at the present price of hogs and with the probable future demand it is unlikely that the price will be reduced soon. It becames important, then, to find a cheaper satisfactory substitute. Dr. Louise Stanley of the Missouri College of Agriculture suggests that housewives consider suet as a source of cheap fat. Suet has not been as extensively used as lard on account of its harder consistency. It can be obtained at about 10 cents a pound. From this can be obtained fourteen ounces of pure fat at a cost of 12 cents a pound. In order to bring this to the consistency of lard it is only necessary to add oil in the proportion of one part of oil to two parts of suet. This gives a compound fat which is very satisfactory for general household use. Cottonseed oil or corn oil can now be obtained at about 21 cents a pound. On the basis of the above proportions a satisfactory lard substitute can be had at a cost of 15 cents a pound."

The state food department is engaged in a vigorous campaign to compel food handlers to protect their stores from flies. Recently Inspector L. E. Wasson secured five warrants in Springfield on the charge that screens were not in place. All screens were supposed to be up by June 1st, and if they are not up, or not in repair, prosecutions will follow.

New York.

CHECKED MAYOR'S BUYING PLANS.

The pet hobby of Mayor Mitchel and his economists to consolidate all the food purchases—and other

Never Questioned

Royal Baking Powder is made from pure cream of tartar, which is derived from grapes. It perfectly leavens the food, making it appetizing, delicious and healthful, and its superiority in all the qualities that make the perfect baking powder is never questioned.

Absolutely Pure

No Alum—No Phosphate

purchases, for that matter—of all the city departments under one great head, in the interests of uniformity, efficiency and economy, has failed—a probable victim of the political ambitions of certain statesmen, voiced through Governor Whitman. Governor Whitman vetoed the measure after it had passed the legislature and the trade sentiment holds that he did it largely because someone other than one of his own coterie broached the scheme and only personally approved ambitions must be furthered in New York state.

Although there is a popular impression that grocers are opposed to all forms of co-operate buying schemes, it happens that this scheme was quite commonly favored and President Sylvan L. Stix of the New York State Wholesale Grocers' Association had written Mayor Mitchel a strong endorsement of the plan, his letter reading in part as follows:

"As a taxpyer, and as head of a large wholesale grocery concern conducting an extensive business in this community, a considerable part of it with the city of New York, and as president of the New York Wholesale Grocers' Association, many of the members of which association do business with the city, I favor the purpose of this bill for the following reasons:

"First—Because it is more efficient to deal with one agency rather than with many municipal departments.

"Second—Because it is simpler and saving in time, labor and money to make deliveries of supplies under one contract rather than under many.

"Third—Because it costs less to deliver goods to fewer delivery points and therefore the goods should be sold more cheaply to the city.

"Fourth—Because more uniform and more nearly standardized inspection may be expected when supplies are delivered in larger quantities at fewer delivery points.

"Fifth—Because under all the advantages enumerated above, the payment of bills may be expedited, which will increase competition and induce more merchants to deal with the city than now are willing to do so.

"Sixth—Because the establishment of a single department of supplies for the entire municipal government should result in the reduction of cost of those supplies to the city, which should tend to the reduction of taxes.

"Seventh—Because the establishment of such a department is in harmony with the best business procedure and, therefore, the more businesslike the municipal government is made, the better for all citizens.

THE SUGAR SITUATION.

While the local grocery trade generally approves the side-tracking of the revenue bill at Washington in the interests of the more imperative food control measure, there is nevertheless a great concern in the outcome of the sugar tax question. Sugar is regarded as perhaps the chief item in the grocer's stock and to have it made a plaything of the politicians at Washington is not pleasing to the average grocer, least of all for the sugar men of this region.

Of course so radical a thing as a revision of the sugar tariff brings into clear relief the old-time battle between the cane refiners, the cane growers and the "beet sugar crowd." Seaboard refiners naturally want

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BON BON
The Original Alum Baking Powder
Never surpassed in wholesomeness, leavening or keeping qualities. Immense output. Low price.
J. C. Grant Chemical Co., E. St. Louis, Ill.

Illinois Vinegar Mfg. Company
19th and Rockwell Streets
CHICAGO, ILL.
MANUFACTURERS OF HIGH GRADE
DISTILLED VINEGAR

Canned Salmon
ALL GRADES ALL SIZES
Largest Distributors
in the World
KELLEY-CLARKE CO.
NEW YORK CITY SEATTLE, WASH.

GOTTFRIED BAY
successor to Chris. Abele
537 West 50th Street, New York
"Dufour" Bolting Cloth
Mustard Mills
French Burr Stone
Grinding Mills
Manufacturer of
ROASTING, GRINDING AND SPECIAL
MACHINERY

Staff Correspondence

free cane, and their spokesman, Frank C. Lowry of the Federal Company, is putting forth some very strong arguments in favor of it. He contends that at the present time the refiners of cane raws are taxed, while makers of beet sugar escape free and pocket the margin in the form of exorbitant profits. So he proposes, instead of a duty on imported cane, an excise tax of a cent a pound on all sugar of whatever material. He claims that this would give the government a revenue of $130,000,000, as against a revenue now of only $38,000,000 and would place the two types of producers on an equable basis, whereas the beet men now escape.

But the Louisiana cane producers and the western beet men have combined to beat Lowry's proposition in Congress and are making a hot fight. Fearing that the Lowry plan might go through, the western contingent have worked up a proposition that the differential drawback paid refiners on sugar exported after being made from duty-paid raws, be withdrawn. This would take away from the Coast refiners their export advantages and would let the beet men in as competitors for over-seas trade. Of course, the seaboard refiners would meet such a move by an effort to secure the right to manufacture in bonded refineries, but that calls for special privileges from Washington and with a Southern administration in the saddle, things do not look favorable.

Pending some decision of the controversy, there is a distinct dullness in sugar movements and prices are so stiff as to threaten a curtailment of consumption, especially in the preserving of food products in the home kitchen. The refiners are doing fine work trying to impress on the housewife that the difference is really very slight in the whole season, but jobbers and retailers report a definite slowness in purchasing, some of which, however, is traceable to the reaction from over-buying a few weeks ago.

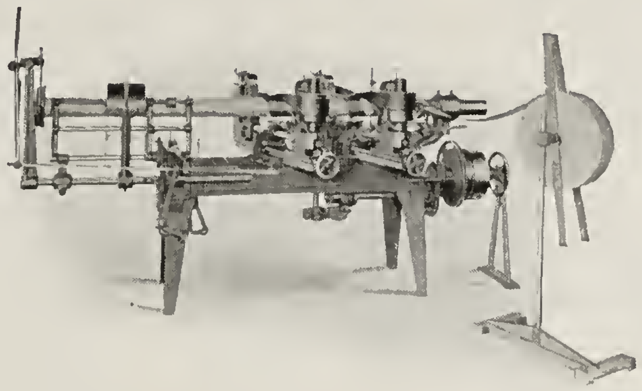
EXPORT SALESMEN IN CLOVER.

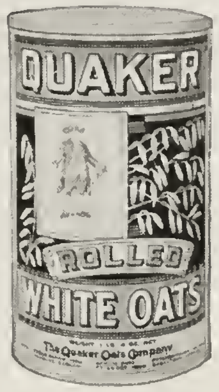
The tremendous increase in export movements of food products has resulted in an interesting situation in most of the local jobbing houses. Whereas the export salesman of most of the houses used to have a job regarded as no sinecure and consequently was given a favorable contract, based on a definite salary and a liberal percentage, the sudden demands of the war have magnified the export salesman's job into one of the big departments of the business and in some cases the export salesman with a fair commission is making more money than the boss. And yet, it is a time when the technical knowledge of experience is so desirable that employers are loath to make changes or even to cancel old contracts. Wherefore lucky export men are in clover.

HENS PLAY A JOKE ON SPECULATORS.

An interesting situation has developed of late in the egg trade, which makes the holders of storage eggs far from comfortable. It will be recalled that the surplus of eggs, from which storage stocks are gathered, came very late and that prices continued so high during the period of large production that what eggs went into ice houses stood in about 12 cents a dozen more than normal for the investor. It took some nerve to store such eggs, but if it was not done then, operators felt that their opportunity would vanish.

"LANGSTON" MACHINERY





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Established 1834

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Machines for Manufacturing Chocolate and Cocoa and other alimentary products.

Latest Awards

Paris, 1900 - - -	Grand Prix
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Grand Prix
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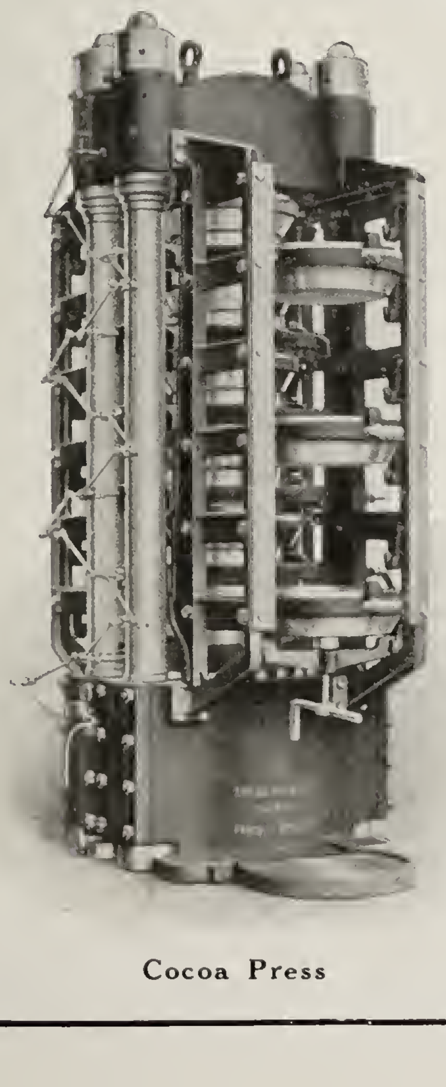

Cocoa Press

Five Roller Finisher

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THE WHOLESOME
BAKING POWDER

Worthy of the highest commendation as a healthful, efficient and economical leavening agent.

The acid ingredient in Rumford is the genuine Prof, Horsford's phosphate in its improved form. It restores phosphatic elements equivalent to those which fine wheat flour loses in the milling.

A Perfect Baking Powder.

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Foods, Drugs, Oils

Infinite Variety
Large Capacities
Prompt Deliveries

American Can Company
Chicago New York San Francisco
WITH OFFICES IN ALL LARGE CITIES

Staff Correspondence

And right at that point the hens played a little joke. After letting up a few days, they started in laying again and ever since eggs have been pouring in at a rate that threatens to force a loss on the eggs already stored. Furthermore, the economical streak that struck the people resulted in a definite falling off in consumption and eggs dropped somewhat in price.

The stocks on June 16 were rather larger than last year, the accumulation since the first of the month in the three largest markets having been as follows:

	1917.	1916.	Difference.
New York	356,401	370,854	— 14,453
Chicago	385,403	275,515	+109,888
Boston	111,170	126,368	— 15,198
Total	852,974	772,737	+ 80,237

If consumption continues curtailed and the supply keeps up, some of the holders of high-priced eggs stand a good chance to pocket a considerable loss, though they may decide to withdraw some of the stock and substitute lower-priced goods if the situation remains unchanged much longer.

Ohio.

The Dairy and Food Division of the Ohio State Board of Agriculture, of which T. L. Calvert is chief, has recently had a good deal of trouble with the cream-collecting stations. The competition is so great that the creameries are locating agents in numerous small places, and often, in the effort to outdo their competitors in the effort to secure new customers, the glass magnifies the cream line so they read it high; or in other cases the price is boosted and they read it low. In either case the public is led to believe that the man who is giving a fair, honest deal is the dishonest man. A gross violation of the weights and measures law was found in the case of a firm that advertised a sale of automobile oil, "due to failure to deliver to consignee because of freight congestion." It was found that this oil had never been sold or consigned to anybody, but had been in storage, and all the one-half barrel drums were billed at 35 gallons, whereas in fact they could not possibly hold more than 29½ gallons. These people were compelled to pay fines and also to reimburse everybody who had been taken in by their proposition.

The Cincinnati Board of Health has issued an order, to be enforced by the food inspectors, that no stale bread or other bakery products may be returned to the bakers. It is announced that unless the order is carried out in good faith by the retailers the dating of bread, pies and kindred products will go into effect. The Cincinnati Sanitary Bulletin says: "Bread should be sold for human consumption only, the price ranging according to age. Great care should be exercised by the stores, bakers and consuming public to prevent deterioration. The public should bear in mind that bread two to five days old retains its food value and is more degestible than hot bread, and that stale bread can be made into many palatable and nutritious dishes at low cost."

Dr. R. B. Blume, D. V. S., Chief Food Inspector of Cincinnati, has been appointed a member of the Committee on Food Conservation and Prevention of Waste. A campaign of education is being conducted to induce the citizens of Cincinnati to starve the garbage can during the war.

ADVERTISEMENTS in these pages are seen by those who manufacture food and those who control its sale.

The leading manufacturers in every branch of the food industry read THE AMERICAN FOOD JOURNAL. Not infinite in number, to be sure—there never can be many leaders—but great in influence.

Those whose official duty it is to enforce the many food laws of the Nation read THE AMERICAN FOOD JOURNAL. Here, again, the number is not great, but the influence is tremendous.

Those who want the *facts* about the food industry—doctors, dietitians, teachers, lecturers, writers and women actively interested in food—read THE AMERICAN FOOD JOURNAL. This is the element which has perhaps the greatest power of all to spread the gospel of sanity in food control.

Is this of interest to you?

The American Food Journal

15 South Market Street, Chicago

Purity of essential ingredients.
Constant U. S. Government Supervision
Strict compliance with all State Pure Food Laws
Rigid sanitary rules in every step of production.

These rules are fully appreciated by
MORRIS & COMPANY,
which sincerely endeavors to merit the confidence of the ever-increasing patronage given their choice oleomargarine
"MARIGOLD"
The National Bread Spread.

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If so, and you are not already a subscriber, send the publisher your check for $1.50 and join the rapidly increasing ranks of those who believe in "good, wholesome food and lots of it."

The American Food Journal
15 South Market Street, Chicago

Staff Correspondence

Rhode Island.

The Assistant Attorney General has given an opinion that half bushel or bushel boxes filled with vegetables for the purpose of sale are, according to law, packages of food, irrespective of whether they have strips put over the cover or no cover at all. Therefore the contents must be marked in terms of weight, measure or numerical count. All food put up for sale in stores should be marked with the net contents, unless the package is so small as to make the marking unreasonable. The Food Department has the right to make rulings regarding the marking of packages, provided such rules do not conflict with the laws of the United States.

Tennessee.

Harry L. Eskew, Food and Drug Commissioner of Tennessee, has been elected Grand Counselor of the United Commercial Travelers of Tennessee. W. C. Roberson of Chattanooga has been appointed food inspector.

West Virginia.

J. H. Stewart, Commissioner of Agriculture, has been appointed a member of the Executive Council of Defense for West Virginia, which has the power to do almost anything that it concludes to be necessary, not only in regard to foods, but anything that in its judgment will strengthen the offense or defense of the nation. A Bureau of Markets has been established in the Department of Agriculture, which has extensive authority over the handling and distribution of foods. A number of laws, enforced by the department and having indirect bearing on the food laws, were passed by the recent legislature. The crop pest law was amplified and made stronger. The investigation and eradication of diseases affecting bees was provided for in the interest of increased honey production. Another act will enforce the rules and regulations leading to the use of pure-bred animals for breeding purposes. The eradication of sheep-killing dogs was the object of a fourth statute. The fertilizer law was amended and re-enacted in a way that will have a beneficial effect in increasing crop production. The pure seed law was amended, and a sufficient appropriation for its enforcement was made for the first time.

Wyoming.

Wyoming has passed an inclusive false advertising bill, which imposes a penalty not to exceed a fine of $100 or three months in the county jail, for the circulation of any advertisement which contains any assertion or statement which is in fact untrue, deceptive or misleading. Each day of the publication of the misleading advertisement constitutes a separate offense. The act does not apply to publishers who print such advertisements without knowledge that they are false. The new commercial feedingstuffs law is being enforced by the State Dairy, Food and Oil Department. Commissioner Maurice Groshon is also acting as the chairman of the committee on seed distribution of the State Council of Defense.

Spanish Embargo on Olive Oil in Bulk.

The Spanish Government, by royal order, prohibits until November 15 the exportation of olive oil excepting fine oils exported in tins or bottles, brands registered before the issuance of order and accompanied by a certificate as to grade.

THE AMERICAN FOOD JOURNAL

—with which was combined on St. Patrick's Day, 1917—

The American Food Manufacturer

There is no higher art than that which tends toward the improvement of human food.—*Henry Ward Beecher.*

ROBERT GORDON GOULD, *Editor*

Vol. XII AUGUST, 1917 No. 8

A MORE complete report of the proceedings of the twenty-first annual convention of the Association of American Dairy, Food and Drug Officials will appear in the September issue of this JOURNAL.

The Food Control Bill.

One of the most far-reaching bits of legislation ever passed by an American Congress is the food control bill printed in full in this issue. While it is avowedly a temporary measure, becoming void automatically at the termination of the war, it is of such nature as to render possible serious interruption of the normal business life of the republic. Undeniably it gives to the President of the United States more power than was ever before possessed by any individual—at least as to material things. The fact that a bill of this nature can be put upon our statute books with practically no real opposition is most eloquent testimony as to the spirit of solidarity at present animating this nation. If, as is claimed, centralized authority is essential to success in modern warfare, the United States is now in most favorable strategic position. Certainly it would be difficult to suggest a more complete measure of centralization than is given by the present bill.

Important Appointments.

Immediately upon the passage of the food control bill, President Wilson publicly announced the appointment as Food Administrator of Mr. Herbert C. Hoover. One of the first official acts of that gentleman was the arrangement for the appointment by the President of a committee the principal duty of which shall be to determine a fair price for the wheat harvested during 1917. This committee will have as its chairman Harry A. Garfield, President of Williams College and son of the martyr-president, James A. Garfield.

On July 31st there was announced the appointment by Governor J. A. A. Burnquist of Minnesota of James Sorensen as Food Commissioner for Minnesota, the appointment to take effect August 15th. Mr. Sorensen has been in charge of the State Experimental Creamery at Albert Lea, Minnesota. This appointment was made at a time when ex-Commissioner Farrell of Minnesota was presiding over the annual convention of state food commissioners. The fact that Mr. Farrell on August 3d—three days subsequent to the appointment of his successor—accepted membership on the 1917-1918 Executive Committee of the Association of American Dairy, Food and Drug Officials is a bit hard to understand.

In Ohio, Thomas L. Calvert has been succeeded by Thomas C. Gault, who will serve as Chief of the Dairy and Food Division of the State Board of Agriculture. Mr. Gault, after having been graduated from the Dairy School of the Ohio State University in 1901, has spent practically all of his life in dairy farming. For two years he was connected with the Agricultural Commission of Ohio as Dairy Inspector and for one year was a butter-maker in a commercial creamery.

Mr. Herman B. Meyers, for many years proprietor of this JOURNAL, has recently accepted the position of Secretary of the Chicago Public Health Association. This organization, which is of recent origin, has as its main purpose the dissemination through the agency of neighborhood meetings of information concerning matters of sanitation, public health, dietetics and cognate subjects.

Deaths Among Food Officials.

Commissioner J. J. Higgins of Washington and R. E. Stallings, chief chemist of the Georgia department, died recently. Their successors have not yet been announced.

Twenty-first Annual Convention
of the
Association of American Dairy, Food and Drug Officials

A GREAT enlargement of the scope of the Association of American Dairy, Food and Drug officials, with possibly a fundamental change in its entire organization, will probably be the most important outcome of the convention just closed at Atlantic City. Following speeches by Dr. Carl L. Alsberg and Dr. J. S. Abott, in which they expressed, very forcibly, the opinion that the Association had not taken the leading part in the present food crisis that rightly belongs to it, resolutions were adopted rendering possible such changes in the by-laws and organization as would widen and enlarge the membership and encourage other organizations to work with the Association. A committee was appointed to consider the situation and make recommendations, the members of which are George L. Flanders of New York, Dr. Carl L. Alsberg, W. B. Barney of Iowa, Frank L. Jackson of Rhode Island and E. F. Ladd of North Dakota.

James Foust, President of the Association of American Dairy, Food and Drug Officials.

The convention was called to order in the auditorium of the Breakers Hotel, at Atlantic City, at 10:00 o'clock on Tuesday, the 31st. A number of the members were late in arriving, and the roll call by the secretary revealed that no quorum was present. The address of welcome was made by a representative of the mayor, and the response, graceful, brief, and to the point, was made by R. E. Rose of Florida. The credentials and resolutions committees were appointed, and this was followed by the address of President John J. Farrell.

This address was a protest against the introduction of substitutes as a war measure. Neither butter nor oleomargarine was specifically mentioned, but there was no doubt in the mind of any one present as to what particular substitute had called forth the phillipic. After the report of the secretary and treasurer the convention adjourned for the morning.

In the general session in the afternoon William Frear of Pennsylvania read a paper on grades for canned corn, peas and other foods, which evidenced deep study of the canning industry and contained many valuable suggestions relative to the establishment of standards. David Klein of Illinois spoke on edible fats. It was an eminently fair discussion of a subject which has been the source of many vehement debates in former conventions.

The morning of Wednesday was given over to the executive session of Section B., The Association of Official Food and Drug Chemists. It was held behind closed doors, and was purely of a technical nature. Julius Hortvet of Minnesota, E. F. Ladd of North Dakota, J. P. Street of Connecticut, W. W. Randall of Maryland and William Frear of Pennsylvania

NEWLY ELECTED OFFICERS.

President—James Foust, of Pennsylvania.

Vice Presidents—A. M. G. Soule, of Maine; J. M. Moore, of Alabama; E. L. Barnhouse, of Missouri.

Secretary—John B. Newman, of Illinois (term not expired).

Treasurer—George J. Weigle, of Wisconsin.

Member of Executive Committee—J. J. Farrell, of Minnesota.

Committee on Co-operation—B. L. Purcell, of Virginia; Maurice Groshon, of Wyoming; R. E. Rose, of Florida; Fred L. Woodworth, of Michigan.

Committee to Revise Scope of the Association—George L. Flanders, of New York; Dr. Carl L. Alsberg, of Washington, D. C.; William B. Barney, of Iowa; Frank L. Jackson, of Rhode Island; E. F. Ladd, of North Dakota.

spoke on methods of taking samples and other matters of laboratory practice.

The convention reconvened in the afternoon and listened to J. D. Mickle of Oregon, L. M. Tolman of Chicago and George L. Flanders of New York. Mr. Mickle spoke of sanitation and health from the food standpoint. After a general review of the causes of food spoilage he strongly condemned the establishment where the only object seemed to be to get the goods out and the money in. He expressed the hope that the time would come when every establishment that handles food would be inspected regularly and thoroughly. Mr. Tolman made the report of the committee on swells and springers in canned goods. This led to an animated discussion of returns. The grocer naturally wants to send spoiled canned goods back, but this sometimes reappears on the market and is sold for human consumption. W. D. Bigelow, of the Canners' Laboratory of Washington, stated the point of view of the trade. Some of the officials were of the opinion that rules should be made regulating returns, while others looked upon it merely as a trade matter which should be threshed out between the canners, the wholesalers and the retailers. Mr. Flanders discussed the ice cream cases, and the right of a state to bar out a wholesome product which fell short in quality. He was answered by James Foust of Pennsylvania, and a good natured argument on the relative merits of New York and Pennsylvania relieved the solemnity of the session.

The Thursday morning session was held in Keith's Theater, where two illustrated talks on milk were delivered; on the essentials of clean milk production, by Dr. Charles E. North of New York, and on manufactured milk products, by R. G. Soule of Syracuse. Lucius P. Brown of New York was called on for an informal address and explained the intricacies of feeding the greatest city in the nation. In the afternoon Section A, the Association of State Food Drug and Dairy Executives met, and was addressed by A. M. G. Soule of Maine, Benjamin L. Purcell of Virginia, Frank A. Jackson of Rhode Island, Fred L. Woodworth of Michigan, Otto Murschel of Nebraska, and George J. Weigle of Wisconsin. The topics discussed included methods of prosecution, co-operation with city officials, establishment of auxiliary associations in groups of states and the sources of milk supply. It has been suggested the present division into sections be abolished, and that in place of them there shall be one general executive session.

On Friday Dr. Carl L. Alsberg and Dr. J. S. Abbott made the speeches in which they told the Association that it must either become more progressive or go out of existence. He frankly declared that the Association has been steadily losing ground with the general consuming public, with manufacturers of food products and with food control officials, due chiefly to its failure to amalgamate itself with other food agencies that are rapidly developing, notably the food section of the American Public Health Association, which is fast appropriating the rightful place of the Association in public attention. Unless the Association wakes up, he said, it will soon find itself face to face with a real crisis. He urged the Association to call a prompt and speedy halt before it is too late. Dr. Abbott spoke very much in the same vein, criticising especially the failure to co-operate with the progressive city officials. The chastisement administered by both men was severe, but it had a salutary effect. A committee was appointed to prepare amendments to the by-laws, and to devise means for enlisting the membership of other officials which are working in the same field as the members of this Association.

The afternoon was devoted to the closing business. The only formal address was made by Harry L. Eskew of Tennessee, who spoke on the use of cheaper foods and substitutes. He expressed the opinion that out of the catastrophe of war some good must come, and that it would take the form of a more rational understanding of foods in general, and an appreciation of the values of foods that are now little used.

Revised standards for macaroni, canned goods, spices and dairy products were adopted, and will appear in full in the September issue of THE AMERICAN FOOD JOURNAL.

John B. Newman, Secretary of the Association of American Dairy, Food and Drug Officials.

The following resolutions were adopted by the convention:

Whereas the necessity for conserving the food of the nation during the present crisis is deeply felt by the members of this Association; and

Whereas, the use of additional materials and substitutes promises an additional supply of food and freedom from hunger, not only for ourselves but for our Allies, and

Whereas, a misunderstanding seems to exist in some quarters as to the legal right of the manufacturer to make such additions or substitutions, therefore

Be it resolved, That this Association is heartily in favor of such additions and substitutions, and in the addition of other materials intended to render the product more nutritious or more effective in its food purpose, provided such addition or substitutions is so plainly stated on the label as to avoid deception.

Be it resolved by this, the American Dairy, Food and Drug Association at this, its twenty-first annual session, hold at Atlantic City, N. J., that it hereby commends the action of the National Government and its purpose to increase and conserve food production, and to exercise the necessary supervision of and control, over its distribution; believing, in view of the world crisis, that this move is a world-wide necessity and therefore needs all possible orderly aid; therefore this Association hereby tenders its help and aid to the duty constituted authorities in charge of the work, in any and every way possible through any and all of the channels of its organization work or knowledge. To that end this Association has appointed a committee as a medium of communication with such duly constituted national authority.

The resolution of Commissioner Eskew of Tennessee, favorable to the use and endorsement of inferior and substitute food products, was reported adversely by the committee, with the following explanation:

Ground covered by this resolution is virtually covered by a resolution tendering aid to national authorities. This resolution will not enlighten manufacturers as to their right. It will only express desires which are useless if in conflict with law and of no aid if not in such conflict.

The convention adopted a resolution of respect and regret in the recent death of Dr. R. E. Stallings of Georgia and ordered it sent to his family.

The food officials registered at the convention were: Dr. J. S. Abbott, in charge of federal and state cooperation, Washington, D. C.; Wm. Allen, state chemist of North Carolina; Dr. Carl Alsberg, chief of bureau of chemistry, Washington, D. C.; Harry E. Barnard, commissioner of Indiana; W. B. Barney, commissioner of Iowa; E. L. Barnhouse, commissioner of Missouri; Lucius P. Brown, chief city food bureau of New York City; T. J. Cronin of federal department of agriculture; Sanford C. Dinsmore, commissioner of Nevada; J. J. Farrell, commissioner of Minnesota; R. E. Doolittle, chief eastern division bureau of chemistry; Harry L. Eskew, commissioner of Tennessee, George L. Flanders, counsel for agricultural department of New York; James Faust, commissioner of Pennsylvania; William Frear, state chemist of Pennsylvania; Maurice Groshon, commissioner of Wyoming; Julius Hortvet, chief chemist of Minnesota; C. D. Howard, state chemist of New Hampshire; Frank A. Jackson, chairman of the commission of Rhode Island; David Klein, chief chemist of Illinois; J. O. LaBach, chief chemist and acting head, Kentucky; E. F. Ladd, commissioner of North Dakota; J. D. Mickle, commissioner of Oregon; J. M. Moore, food and drug clerk of Alabama; Otto Murschel, deputy commissioner of Nebraska; John B. Newman, commissioner of Illinois; Dr. W. G. Phelps of the bureau of chemistry, Washington, D. C.; Benjamin L. Purcell, commissioner of Virginia; W. W. Randall, chemist of Maryland; Dr. R. E. Rose, state chemist of Florida; A. M. G. Soule, deputy commissioner of Maine; Frank H. Stadtmueller, commissioner of Connecticut; John Phillips Street, chemist of Connecticut; W. G. Tice, chief chemist of New Jersey; L. M. Tolman, chief central division bureau of chemistry, Chicago; Geo. J. Weigle, commissioner of Wisconsin; Fred L. Woodworth, commissioner of Michigan.

Among the associate members of the association present were: Dana Ackerly, of Breed, Abbott and Morgan, attorneys for the National Wholesale Grocers' Association; R. M. Allen, representing the Ward Baking Co.; J. T. Ashcraft, representing the cottonseed millers; K. K. Bell, representing the Calumet Baking Powder Co.; W. D. Bigelow, chief chemist of the National Canners' Laboratory; L. F. Brown, secretary of the Feed Manufacturers' Association; T. J. Bryan, chemist of the Calumet Baking Powder Co., J. R. Chittick, chemist of the Jaques Manufacturing Co.; William T. Creasy, secretary of the National Dairy Union; R. G. Gould, editor of THE AMERICAN FOOD JOURNAL; B. F. Harris, representing the Pacific Coast Borax Co.; Ellis Howland of the New York Journal of Commerce; W. P. Jones of Washington; W. C. Kirk, representing Armour & Co.; O. D. LaDow, representing Curtice Bros.; G. F. Mason, representing H. J. Heinz Co.; George McCabe of Chicago; Charles F. McKinley, attorney for the Illinois state food commission; J. D. Miller, repsenting Sprague, Warner & Co.; A. V. H. Morey, manager of the scientific department of Sears, Roebuck & Co.; Frank Smith, representing the Postum Cereal Co.; Mr. Sullivan, representing the Franklin Sugar Refining Co.; Holgate Thomas, representing the California Associated Raisin Growers; C. J. Tressler, representing Swift & Co.; T. B. Wagner of the Corn Products Refining Co., and William B. Winslow, representing Alart & McGuire.

Delivery Costs In Washington.

The expense of getting food products from the retailer to the consumer amounts, on an average, to 7½ per cent of the total cost of the food, according to a recent investigation by the Department of Commerce. In a special report called "Study of Cartage Costs in the City of Washington," Eugene F. Hartley of the Census Bureau gives the result of his researches on delivery costs.

One hundred and twenty-eight retail establishments were investigated, and the following table shows the average per cent of gross sales spent for delivery:

	Per cent.
Meat products (wholesale)	1.1
Bakery products	19.8
Dairy products	12.1
Groceries and meats	4.4
Ice cream	14.9
Ice	45.6
Bottled soft drinks	20.2

Regarding dairy products, the report says:

"The subject of milk delivery deserves special mention. Of the price paid for this commodity by the consumer, it is probably true that about 40 per cent represents profit and the cost of handling and distribution. Of this 40 per cent, the average cost of distribution or delivery would be from one-fourth to three-tenths, that is, from 10 to 12 per cent of the selling price. That a part of this cost is chargeable to the demand of the consumer for special service is the opinion of a prominent milk dealer, who states that, in addition to his three regular deliveries, he is forced to maintain three or more special deliveries, under penalty of losing his patrons.

WE'RE ALL IN THE SAME BOAT

OUR first military need in this crisis is an adequate food supply. European nations have learned by bitter experience that the cutting down of the cost of food to the consumer below a paying price to the farmer, means nothing less than sawing off the limb on which both consumer and producer are sitting.

The consumer must be made to understand that unless he pays fair prices, the farmer cannot and will not sow. And the farmer must be made to realize that unless he sows, the city consumer can not live to do his part for the national defense. We are all in the same boat, those who buy food and those who grow or raise it. If anyone scuttles it we shall all sink.

The nation needs food, needs it for our civilian population, for the neutral countries, for our soldiers, and for the soldiers of our Allies, who daily are dying by the thousands fighting our battles. The experience of other nations indicates that to get food it may become necessary to guarantee to the producer a price high enough to repay him for his labor and expense, plus a reasonable profit. The next thing is to market it at the smallest possible advance over its cost on the farm. The third step is to conserve our food products, to eliminate over-eating, unintelligent eating, and all other forms of waste.

When there is too little food the nation must go hungry. When there is enough food but no efficient system of marketing it, again the nation goes hungry, while crops rot on the ground. Even when there is enough food and it is efficiently distributed, the nation may go hungry tomorrow if its people gorge and waste today.

From the standpoint of both the consumer and the farmer, the Government should not be without power to guarantee the producer that for his wheat and for his corn, for at least his non-perishable crops, he should be certain of paying prices. If the emergency demands it, this power should be exercised, in order to protect the consumer by insuring the production of food and the farmer by insuring a return for his investment and his labor.

But the Government must also eliminate those middlemen standing between the farmer and the consumer who corner food products and practice extortion. The Government is already doing everything possible to bring the producer and the consumer together for their mutual benefit. The government does not propose, so far as the power within it lies, to permit one dollar to go to any man who fails to perform a definite social service.

No suggestion has ever been made to impose prices lower than the prices received by farmers for foodstuffs during the past year. Rather the reverse. If the Government had the power to fix a maximum price, it would use this power as a club, to be applied only in individual cases where it was clear that an individual or a corporation had cornered foodstuffs or was practicing extortion. After each particular abuse had been controlled by the exercise of this power, the incident would be closed. Any further exercise of such power would depend upon the appearance of another similar concrete condition. Such maximum price-fixing power would not hurt the farmer nor anyone else except the disloyal manipulator of foodstuffs.

If the Executive has adequate power, it is believed that it will be able to keep the prices of food staples from being artificially raised by speculators and gamblers, without having recourse to the additional power to establish maximum rates. In asking Congress to confer such power, the purpose was to use it only as a last resort.

In order to win this war the Government and the people—the producer, distributor, and the consumer alike—must pull together. Any citizen or group of citizens who pulls in the wrong direction is pulling away from victory. The consumer should help to see to it that the farmer gets reasonable prices for his products. The farmer likewise should throw his influence into the scale and help the Government to protect the consumer from the extortion of unscrupulous and disloyal food speculators and food cornerers.

CARL VROOMAN, Assistant Secretary of Agriculture.

Full Text of Food Control Bill

AN ACT

To Provide Further for the National Security and Defense by Encouraging the Production, Conserving the Supply, and Controlling the Distribution of Food Products and Fuel.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

That, by reason of the existence of a state of war, it is essential to the national security and defense, for the successful prosecution of the war, and for the support and maintenance of the Army and Navy, to assure an adequate supply and equitable distribution, and to facilitate the movement, of foods, feeds, fuel, including fuel oil and natural gas, and fertilizer and fertilizer ingredients, tools, utensils, implements, machinery, and equipment required for the actual production of foods, feeds, and fuel, hereafter in this Act called necessaries; to prevent, locally or generally, scarcity, monopolization, hoarding, injurious speculation, manipulations, and private controls,' affecting such supply, distribution, and movement; and to establish and maintain governmental control of such necessaries during the war. For such purposes the instrumentalities, means, methods, powers, authorities, duties, obligations, and prohibitions hereinafter set forth are created, established, conferred, and prescribed. The President is authorized to make such regulations and to issue such orders as are essential effectively to carry out the provisions of this act.

Sec. 2. That in carrying out the purposes of this act the President is authorized to enter into any voluntary arrangements or agreements, to create and use any agency or agencies, to accept the services of any person without compensation, to cooperate with any agency or person, to utilize any department or agency of the Government, and to co-ordinate their activities so as to avoid any preventable loss or duplication of effort or funds.

Sec. 3. That no person acting either as a voluntary or paid agent or employe of the United States in any capacity, including an advisory capacity, shall solicit, induce, or attempt to induce any person or officer authorized to execute or to direct the execution of contracts on behalf of the United States to make any contract or give any order for the furnishing to the United States of work, labor, or services, or of materials, supplies, or other property of any kind or character, if such agent or employe has any pecuniary interest in such contract or order, or if he or any firm of which he is a member, or corporation, joint-stock company, or association of which he is an officer or stockholder, or in the pecuniary profits of which he is directly or indirectly interested, shall be a party thereto. Nor shall any agent or employe make, or permit any committee or other body of which he is a member to make, or participate in making, any recommendation concerning such contract or order to any council, board, or commission of the United States, or any member or subordinate thereof, without making to the best of his knowledge and belief a full and complete disclosure in writing to such council, board, commission, or subordinate of any and every pecuniary interest which he may have in such contract or order and of his interest in any firm, corporation, company, or association being a party thereto. Nor shall he participate in the awarding of such contract or giving such order. Any willful violation of any of the provisions of this section shall be punishable by a fine of not more than $10,000, or by imprisonment of not more than five years, or both: Provided, That the provisions of this section shall not change, alter or repeal section forty-one of chapter three hundred and twenty-one, Thirty-fifth Statutes at Large.

Various Forms of Price Manipulation Declared Illegal.

Sec. 4. That it is hereby made unlawful for any person willfully to destroy any necessaries for the purpose of enhancing the price of restricting the supply thereof; knowingly to commit waste or willfully to permit preventable deterioration of any necessaries in or in connection with their production, manufacture, or distribution; to hoard, as defined in section six of this Act, any necessaries; to monopolize or attempt to monopolize, either locally or generally, any necessaries; to engage in any discriminatory and unfair, or any deceptive or wasteful practice or device, or to make any unjust or unreasonable rate or charge, in handling or dealing in or with any necessaries; to conspire, combine, agree, or arrange with any other person, (a) to limit the facilities for transporting, producing, harvesting, manufacturing, supplying, storing, or dealing in any necessaries; (b) to restrict the supply of any necessaries; (c) to restrict distribution of any necessaries; (d) to prevent, limit, or lessen the manufacture or production of any necessaries in order to enhance the price thereof, or (e) to exact excessive prices for any necessaries, or to aid or abet the doing of any act made unlawful by this section.

Licenses for Manufacture and Distribution of Necessaries.

Sec. 5. That, from time to time, whenever the President shall find it essential to license the importation, manufacture, storage, mining, or distribution of any necessaries, in order to carry into effect any of the purposes of this Act, and shall publicly so announce, no person shall, after a date fixed in the announcement, engage in or carry on any such business specified in the announcement of importation, manufacture, storage, mining, or distribution of any necessaries as set forth in such announcement, unless he shall secure and hold a license issued pursuant to this section. The President is authorized to issue such licenses and to prescribe regulations for the issuance of licenses and requirements for systems or accounts and auditing of accounts to be kept by licenses, submission of reports by them, with or without oath or affirmation, and the entry and inspection by the President's duly authorized agents of the places of business of licensees. Whenever the President shall find that any storage charge, commission, profit, or practice of any licensee is unjust, or unreasonable, or discriminatory and unfair, or wasteful, and shall order such licensee, within a reasonable time fixed in the order to discontinue the same, unless such order, which shall recite the facts found, is revoked or suspended, such licensee shall, within the time prescribed in the order, discontinue such unjust, unreasonable, discriminatory, and unfair storage charge, commission, profit, or practice. The President may, in lieu of any such unjust, unreasonable, discriminatory and unfair storage charge, commission, profit, or practice, find what is a just, reasonable, nondiscriminatory, and fair storage charge, commission, profit, or practice, and in any proceeding brought in any court such order of the President shall be prima facie evidence. Any person who, without a license issued pursuant to this section, or whose license shall have been revoked, knowingly engages in or carries on any business for which a license is required under this section, or willfully fails or refuses to discontinue any unjust, unreasonable, discriminatory, and unfair storage charge, commission, profit or practice, in accordance with the requirement of an order issued under this section, or any regulation prescribed under this section, shall, upon conviction thereof, be punished by a fine not exceeding $5,000 or by imprisonment for not more than two years, or both: Provided, That this section shall not apply to any farmer, gardener, co-operative association of farmers or gardeners, including live-stock farmers, or other persons with respect to the products of any farm, garden, or other land owned, leased, or cultivated by him, nor to any retailer with respect to the retail business actually conducted by him, nor to any common carrier, nor shall anything in this section be construed to authorize the fixing or imposition of a duty or tax upon any article imported into or exported from the United States or any State, Territory, or the District of Columbia: Provided further, That for the purposes of this Act a retailer shall be deemed to be a person, copartnership, firm, corporation, or association not engaging in the wholesale business whose gross sales do not exceed $100,000 per annum.

Hoarding Defined.

Sec. 6. That any person who wilfully hoards any necessaries shall upon conviction thereof be fined not exceeding $5,000 or be imprisoned for not more than two years, or both. Necessaries shall be deemed to be hoarded within the meaning of this Act when either (a) Held, contracted for, or arranged for by any person in a quantity in excess of his reasonable requirements for use or consumption by himself and dependents for a reasonable time; (b) held. contracted for, or arranged for by any manufacturer, wholesaler, retailer, or other dealer in a quantity in excess of the reasonable requirements of his business for use or sale by him for a reasonable time, or reasonably required to furnish necessaries produced in surplus quantities seasonally throughout the period of scant or no production; or (c) withheld, whether by possession or under any contract or arrangement, from the market by any person for the purpose of unreasonably increasing or diminishing the price: Provided, That this section shall not include or relate to transactions on any exchange, board of trade, or similar institution or place of business as described in section thirteen of this Act that may be permitted by the President under the authority conferred upon him by said section thirteen: Provided, however, That any accumulating or withholding by any farmer or gardener, co-operative association of farmers or gardeners, including live-stock farmers, or any other person, of the products of any farm, garden, or other land owned, leased, or cultivated by him shall not be deemed to be hoarding within the meaning of this Act.

Sec. 7. That whenever any necessaries shall be hoarded as defined in section six they shall be liable to be proceeded against in any district court of the United States within the district where the same are found and seized by a process of libel for condemnation, and if such necessaries shall be adjudged to be hoarded they shall be disposed of by sale in such manner as to provide the most equitable distribution thereof as the court may direct, and the proceeds thereof, less the legal cost and charges, shall be paid to the party entitled thereto. The proceedings of such libel cases shall conform as near as may be to the proceedings in admiralty, except that either party may demand trial by jury of any issue of fact joined in any such case, and all such proceedings shall be at the suit of and in the name of the United States. It shall be the duty of the United States attorney for the proper district to institute and prosecute any such action upon presentation to him of satisfactory evidence to sustain the same.

Sec. 8. That any person who willfully destroys any necessaries for the purpose of enhancing the price or restricting the supply thereof shall, upon conviction thereof, be fined not exceeding $5,000 or imprisoned for not more than two years, or both.

Sec. 9. That any person who conspires, combines, agrees, or arranges with any other person (a) to limit the facilities for transporting, producing, manufacturing, supplying, storing, or dealing in any necessaries; (b) to restrict the supply of any necessaries; (c) to restrict the distribution of any necessaries; (d) to prevent, limit, or lessen the manufacture or production of any necessaries in order to enhance the price thereof, shall, upon conviction thereof, be fined not exceeding $10,000 or be imprisoned for not more than two years, or both.

Power to Requisition Necessaries.

Sec. 10. That the President is authorized, from time to time, to requisition foods, feeds, fuels, and other supplies necessary to the support of the Army or the maintenance of the Navy, or any other public use connected with the common defense, and to requisition, or otherwise provide, storage facilities for such supplies; and he shall ascertain and pay a just compensation therefor. If the compensation so determined be not satisfactory to the person entitled to receive the same, such person shall be paid seventy-five per centum of the amount so determined by the President, and shall be entitled to sue the United States to recover such further sum as, added to said seventy-five per centum will make up such amount as will be just compensation for such necessaries or storage space, and jurisdiction is hereby conferred on the United States District Courts to hear and determine all such controversies: Provided, That nothing in this section or in the section that follows, shall be construed to require any natural person to furnish to the Government any necessaries held by him and reasonably required for consumption or use by himself and dependents, nor shall any person, firm, corporation, or association be required to furnish to the Government any seed necessary for the seeding of land owned, leased, or cultivated by them.

Sec. 11. That the President is authorized from time to time to purchase, to store, to provide storage facilities for, and to sell for cash at reasonable prices, wheat, flour, meal, beans, and potatoes: Provided, That if any minimum price shall have been theretofore fixed, pursuant to the provisions of section fourteen of this Act, then the price paid for any such articles so purchased shall not be less than such minimum price. Any moneys received by the United States from or in connection with the disposal by the United States of necessaries under this section may, in the discretion of the President, be used as a revolving fund for further carrying out the purposes of this section. Any balance of such moneys not used as part of such revolving fund shall be covered into the Treasury as miscellaneous receipts.

Can Take Over Factories, Pipe Lines and Mines.

Sec. 12. That whenever the President shall find it necessary to secure an adequate supply of necessaries for the support of the Army or the maintenance of the Navy, or for any other public use connected with the common defense, he is authorized to requisition and take over, for use or operation by the Government, any factory, packing house, oil pipe line, mine, or other plant, or any part thereof, in or through which any necessaries are or may be manufactured, produced, prepared, or mined, and to operate the same. Whenever the President shall determine that the further use or operation by the Government of any such factory, mine, or plant, or part thereof, is not essential for the national security or defense, the same shall be restored to the person entitled to the possession thereof. The United States shall make just compensation, to be determined by the President, for the taking over, use, occupation, and operation by the Government of any such factory, mine, or plant, or part thereof. If the compensation so determined be unsatisfactory to the person entitled to receive the same, such person shall be paid seventy-five per centum of the amount so determined by the President, and shall be entitled to sue the United States to recover such further sum as, added to said seventy-five per centum, will make up such amount as will be just compensation, in the manner provided by section twenty-four, paragraph twenty, and section one hundred and forty-five of the Judicial Code. The President is authorized to prescribe such regulations as he may deem essential for carrying out the purposes of this section, including the operation of any such factory, mine, or plant, or part thereof, the purchase, sale, or other disposition of articles used, manufactured, produced, prepared, or mined therein, and the employment, control, and compensation of employes. Any moneys received by the United States from or in connection with the use or operation of any such factory, mine, or plant, or part thereof, may, in the discretion of the President, be used as a revolving fund for the purpose of the continued use or operation of any such factory, mine, or plant, or part thereof, and the accounts of each such factory, mine, plant, or part thereof, shall be kept separate and distinct. Any balance of such moneys not used as part of such revolving fund shall be paid into the Treasury as miscellaneous receipts.

Regulation of Exchanges.

Sec. 13. That whenever the President finds it essential in order to prevent undue enhancement, depression, or fluctuation of prices of, or in order to prevent injurious speculation in, or in order to prevent unjust market manipulation or unfair and misleading market quotations of the prices of necessaries, hereafter in this section called evil practices, he is authorized to prescribe such regulations governing, or may either wholly or partly prohibit, operations, practices, and transactions at, on, in, or under the rules of any exchange, board of trade, or similar institution or place of business as he may find essential in order to prevent, correct, or remove such evil practices. Such regulations may require all persons coming within their provisions to keep such records and statements of account, and may require such persons to make such returns, verified under oath or otherwise, as will fully and correctly disclose all transactions at, in, or on, or under the rules of any such exchange, board of trade, or similar institution or place of business, including the making, execution, settlement, and fulfillment thereof. He may also require all persons acting in the capacity of a clearing house, clearing association, or similar institution, for the purpose of clearing settling, or adjusting transactions at, in, or on, or under the rules of any such exchange, board of trade, or similar institution or place of business, to keep such records and to make such returns as will fully and correctly disclose all facts in their possession relating to such transactions, and he may appoint agents to conduct the investigations necessary to enforce the provisions of this section and all rules and regulations made by him in pursuance thereof, and may fix and pay the compensation of such agents. Any person who willfully violates any regulation made pursuant to this section, or who knowingly engages in any operation, practice, or transaction prohibited pursuant to this section, or who willfully aids or abets any such violation or any such prohibited operation, practice, or transaction, shall, upon conviction thereof, be punished by a fine not exceeding $10,000 or by imprisonment for not more than four years, or both.

Minimum Prices for Wheat.

Sec. 14. That whenever the President shall find that an emergency exists requiring stimulation of the production of wheat and that it is essential that the producers of wheat, produced within the United States, shall have the benefits of the guaranty provided for in this section, he is authorized, from time to time, seasonably and as far in advance of seeding time as practicable, to determine and fix and to give public notice of what, under specified conditions, is a reasonable guaranteed price for wheat, in order to assure such producers a reasonable profit. The President shall thereupon fix such guaranteed price for each of the official grain standards for wheat as established under the United States grain standards Act, approved August eleventh, nineteen hundred and sixteen. The President shall from time to time establish and promulgate such regulations as he shall deem wise in connection with such guaranteed prices, and in particular governing conditions of delivery and payment, and differences in price for the several standard grades in the principal primary markets of the United States, adopting number one northern spring or its equivalent at the principal interior primary markets as the basis. Thereupon, the Government of the United States hereby guarantees every producer of wheat produced within the United States, that, upon compliance by him with the regulations prescribed, he shall receive for any wheat produced in reliance upon this guarantee within the period, not exceeding eighteen months, prescribed in the notice, a price not less than the guaranteed price therefor as fixed pursuant to this section. In such regulations the President shall prescribe the terms and conditions upon which any such producer shall be entitled to the benefits of such guaranty. The guaranteed prices for the several standard grades of wheat, for the crop of nineteen hundred and eighteen, shall be based upon number one northern spring or its equivalent at not less than $2 per bushel at the principal interior primary markets. This guaranty shall not be dependent upon the action of the President under the first part of this section, but is hereby made absolute and shall be binding until May first, nineteen hundred and nineteen. When the President finds that the importation into the United States of any wheat produced outside of the United States materially enhances or is likely materially to enhance the liabilities of the United States under guaranties of prices therefor made pursuant to this section, and ascertains what rate of duty, added to the then existing rate of duty on wheat and to the value of wheat at the time of importation, would be sufficient to bring the price thereof at which imported up to the price fixed therefor pursuant to the foregoing provisions of this section he shall proclaim such facts, and thereafter there shall be levied, collected, and paid upon wheat when imported, in addition to the then existing rate of duty, the rate of duty so ascertained; but in no case shall any such rate of duty be fixed at an amount which will effect a reduction of the rate of duty upon wheat under any then existing tariff law of the United States. For the purpose of making any guaranteed price effective under this section, or whenever he deems it essential in order to protect the Government of the United States against material enhancement of its liabilities arising out of any guaranty under this section, the President is authorized also, in his discretion, to purchase any wheat for which a guaranteed price shall be fixed under this section, and to hold, transport, or store it, or to sell, dispose of, and deliver the same to any citizen of the United States or to any Government engaged in war with any country with which the Government of the United States is or may be at war or to use the same as supplies for any department or agency of the Government of the United States. Any moneys received by the United States from or in connection with the sale or disposal of wheat under this section may, in the discretion of the President, be used as a revolving fund for further carrying out the purposes of this section. Any balance of such moneys not used as part of such revolving fund shall be covered into the Treasury as miscellaneous receipts.

Control of Alcoholic Beverages.

Sec. 15. That from and after thirty days from the date of the approval of this act no foods, fruits, food materials, or feeds shall be used in the production of distilled spirits for beverage purposes: Provided, that under such rules, regulations, and bonds as the President may prescribe such materials may be used in the production of distilled spirits exclusively for other than beverage purposes, or for the fortification of pure sweet wines as defined by the act entitled "An Act to increase the revenue, and for other purposes," approved September 8th, 1916. Nor shall there be imported into the United States any distilled spirits. Whenever the President shall find that limitation, regulation, or prohibition of the use of foods, fruits, food materials, or feeds in the production or malt or vinous liquors for beverage purposes, or that reduction of the alcoholic content of any such malt or vinous liquor, is essential, in order to assure an adequate and continuous supply of food, or that the national security and defense will be subserved thereby, he is authorized, from time to time, to prescribe and give public notice of the extent of the limitation, regulation, prohibition, or reduction so necessitated. Whenever such notice shall have been given and shall remain unrevoked no person shall, after a reasonable time prescribed in such notice, use any foods, fruits, food materials, or feeds in the production of malt or vinous liquors, or import any such liquors except under license issued by the President and in compliance with rules and regulations determined by him governing the production and importation of such liquors and the alcoholic content thereof. Any person who willfully violates the provisions of this section, or who shall use any foods, fruits, food materials, or feeds in the production of malt or vinous liquors, or who shall import any such liquors, without first obtaining a license so to do when a license is required under this section, or who shall violate any rule or regulation made under this section, shall be punished by a fine not exceeding $5,000, or by imprisonment for not more than two years, or both: Provided further, that nothing in this section shall be construed to authorize the licensing of the manufacture of vinous or malt liquors in any state, territory, or any civil subdivision thereof, where the manufacture of such vinous or malt liquor is prohibited.

Sec. 16. That the President is authorized and directed to commandeer any or all distilled spirits in bond or in stock at the date of the approval of this Act for redistillation, in so far as such redistillation may be necessary to meet the requirements of the Government in the manufacture of munitions and other military and hospital supplies, or in so far as such redistillation would dispense with the necessity of utilizing products and materials suitable for foods and feeds in the future manufacture of distilled spirits for the purposes herein enumerated. The President shall determine and pay a just compensation for the distilled spirits so commandeered; and if the compensation so determined be not satisfactory to the person entitled to receive the same, such person shall be paid seventy-five per centum of the amount so determined by the President and shall be entitled to sue the United States to recover such further sum as, added to said seventy-five per centum, will make up such amount as will be just compensation for such spirits, in the manner provided by section twenty-four, paragraph twenty, and section one hundred and forty-five of the Judicial Code.

Sec. 17. That every person who willfully assaults, resists, impedes, or interferes with any officer, employe, or agent of the United States in the execution of any duty authorized to be performed by or pursuant to this Act shall upon conviction thereof be fined not exceeding $1,000 or be imprisoned for not more than one year, or both.

Appropriations.

Sec. 18. That the sum of $2,500,000 is hereby appropriated, out of any moneys in the Treasury not otherwise appropriated, to be available until June 30th, 1918, for the payment of such rent, the expense, including postage, of such printing and publications, the purchase of such material and equipment, and the employment of such persons and means, in the city of Washington and elsewhere, as the President may deem essential.

Sec. 19. That for the purposes of this Act the sum of $150,000,000 is hereby appropriated, out of any moneys in the Treasury not otherwise appropriated, to be available during the time this Act is in effect: Provided, that no part of this appropriation shall be expended for the purposes described in the preceding section: Provided further, that itemized statements covering all purchases and disbursements under this and the preceding section shall be filed with the Secretary of the Senate and the Clerk of the House of Representatives on or before the 25th day of each month after the taking effect of this Act, covering the business of the preceding month, and said statements shall be subject to public inspection.

Sec. 20. That the employment of any person under the provisions of this Act shall not exempt any such person from military service under the provisions of the selective draft law approved May 18th, 1917.

Sec. 21. The President shall cause a detailed report to be made to the Congress on the first day of January each year of all proceedings had under this Act during the year preceding. Such report shall, in addition to other matters, contain an account of all persons appointed or employed, the salary or compensation paid or allowed each, the aggregate amount of the different kinds of property purchased or requisitioned, the use and disposition made of such property, and a statement of all receipts, payments, and expenditures, together with a statement showing the general character, and estimated value of all property then on hand, and the aggregate amount and character of all claims against the United States growing out of this Act.

Sec. 22. That if any clause, sentence, paragraph, or part of this Act shall for any reason be adjudged by any court of competent jurisdiction to be invalid, such judgment shall not affect, impair, or invalidate the remainder thereof, but shall be confined in its operation to the clause, sentence, paragraph, or part thereof, directly involved in the controversy in which such judgment shall have been rendered.

Sec. 23. That words used in this Act shall be construed to import the plural or the singular, as the case demands. The word "person," wherever used in this Act, shall include individuals, partnerships, associations, and corporations. When construing and enforcing the provisions of this Act, the act, omission, or failure of any official, agent, or other person acting for or employed by any partnership, association, or corporation within the scope of his employment or office shall, in every case, also be deemed the act, omission, or failure of such partnership, association, or corporation as well as that of the person.

Act Expires When Peace Is Declared.

Sec. 24. That the provisions of this Act shall cease to be in effect when the existing state of war between the United States and Germany shall have terminated, and the fact and date of such termination shall be ascertained and proclaimed by the President; but the termination of this Act shall not affect any act done, or any right or obligation accruing or accrued, or any suit or proceeding had or commenced in any civil case before the said termination pursuant to this Act; but all rights and liabilities under this Act arising before its termination shall continue and may be enforced in the same manner as if the Act had not terminated. Any offense committed and all penalties, forfeitures, or liabilities incurred prior to such termination may be prosecuted or punished in the same manner and with the same effect as if this Act had not been terminated.

Regulation of Coal.

Sec. 25. That the President of the United States shall be, and he is hereby, authorized and empowered, whenever and wherever in his judgment necessary for the efficient prosecution of the war, to fix the price of coal and coke, wherever and whenever sold, either by producer or dealer, to establish rules for the regulation of and to regulate the method of production, sale, shipment, distribution, apportionment, or storage thereof among dealers and consumers, domestic or foreign; said authority and power may be exercised by him in each case through the agency of the Federal Trade Commission, during the war, or for such part of said time as in his judgment may be necessary.

That if, in the opinion of the President, any such producer or dealer fails or neglects to conform to such prices or regulations, or to conduct his business efficiently under the regulations and control of the President as aforesaid, or conducts it in a manner prejudicial to the public interest, then the President is hereby authorized and empowered in every such case to requisition and take over the plant, business, and all appurtenances thereof belonging to such producer or dealer as a going concern, and to operate or cause the same to be operated in such manner and through such agency as he may direct during the period of the war or for such part of said time as in his judgment may be necessary.

That any producer or dealer whose plant, business, and appurtenances shall have been requisitioned or taken over by the President shall be paid a just compensation for the use thereof during the period that the same may be requisitioned or taken over as aforesaid, which compensation the President shall fix or cause to be fixed by the Federal Trade Commission.

That if the prices so fixed, or if, in the case of the taking over or requisitioning of the mines or business of any such producer or dealer, the compensation therefor as determined by the provisions of this Act be not satisfactory to the person or persons entitled to receive the same, such person shall be paid seventy-five percentum of the amount so determined, and shall be entitled to sue the United States to recover such further sum as, added to said seventy-five per centum, will make up such amount as will be just compensation in the manner provided by section twenty-four, paragraph twenty, and section one hundred and forty-five of the Judicial Code.

While operating or causing to be operated any such plants or business, the President is authorized to prescribe such regulations as he may deem essential for the employment, control, and compensation of the employes necessary to conduct the same.

Or if the President of the United States shall be of the opinion that he can thereby better provide for the common defense, and whenever, in his judgment, it shall be necessary for the efficient prosecution of the war, then he is hereby authorized and empowered to require any or all producers of coal and coke, either in any special area or in any special coal fields, or in the entire United States, to sell their products only to the United States through an agency to be designated by the President, such agency to regulate the resale of such coal and coke, and the prices thereof, and to establish rules for the regulation of and to regulate the methods of production, shipment, distribution, apportionment, or storage thereof among dealers, consumers, domestic or foreign, and to make payment of the purchase price thereof to the producers thereof, or to the person or persons legally entitled to said payment.

That within fifteen days after notice from the agency so designated to any producer of coal and coke that his, or its, output is to be so purchased by the United States as hereinbefore described, such producer shall cease shipments of said product upon his own account and shall transmit to such agency all orders received and unfilled or partially unfilled, showing the exact extent to which shipments have been made thereon, and thereafter all shipments shall be made only on authority of the agency designated by the President, and thereafter no such producer shall sell any of said products except to the United States through such agency, and the said agency alone is hereby authorized and empowered to purchase during the continuance of the requirement the output of such producers.

That the prices to be paid for such products so purchased shall be based upon a fair and just profit over and above the cost of production, including proper maintenance and depletion charges, the reasonableness of such profits and cost of production to be determined by the Federal Trade Commission, and if the prices fixed by the said commission of any such product purchased by the United States as hereinbefore described be unsatisfactory to the person or persons entitled to receive the same, such person or persons shall be paid 75 per centum of the amount so determined and shall be entitled to sue the United States to recover such further sum as added to said 75 per centum will make up such amount as will be just compensation in the manner provided by section twenty-four, paragraph twenty, and section one hundred and forty-five of the Judicial Code. All such products so sold to the United States shall be sold by the United States at such uniform prices, quality considered, as may be practicable and as may be determined by said agency to be just and fair.

Any moneys received by the United States for the sale of any such coal and coke may, in the discretion of the President, be used as a revolving fund for further carrying out the purposes of this section. Any moneys not so used shall be covered into the Treasury as miscellaneous receipts.

That when directed by the President, the Federal Trade Commission is hereby required to proceed to make full inquiry giving such notice as it may deem practicable, into the cost of producing under reasonably efficient management at the various places of production the following commodities, to wit: Coal and coke.

The books, correspondence, records, and papers in any way referring to transactions of any kind relating to the mining, production, sale, or distribution of all mine operators or other persons whose coal and coke have or may become subject to this section, and the books, correspondence, records and papers of any person applying for the purchase of coal and coke from the United States shall at all times be subject to inspection by the said agency, and such person or persons shall promptly furnish said agency any data or information relating to the business of such person or persons which said agency may call for, and said agency is hereby authorized to procure the information in reference to the business of such coal mine operators and producers of coke and customers therefor in the manner provided for in sections six and nine of the Act of Congress approved September 26th, 1914, entitled "An Act to create a Federal Trade Commission, to define its powers and duties, and for other purposes," and said agency is hereby authorized and empowered to exercise all the powers granted to the Federal Trade Commission by said Act for the carrying out of the purposes of this section.

Having completed its inquiry respecting any commodity in any locality it shall, if the President has decided to fix the prices at which any such commodity shall be sold by producers and dealers generally, fix and publish maximum prices for both producers of and dealers in any such commodity, which maximum prices shall be observed by all producers and dealers until further action thereon is taken by the commission.

In fixing maximum prices for producers the commission shall allow the cost of production, including the expense of operation, maintenance, depreciation, and depletion, and shall add thereto a just and reasonable profit.

In fixing such prices for dealers, the commission shall allow the cost to the dealer and shall add thereto a just and reasonable sum for his profit in the transaction.

The maximum prices so fixed and published shall not be construed as invalidating any contract in which prices are fixed, made in good faith, prior to the establishment and publication of maximum prices by the commission.

Whoever shall, with knowledge that the prices of any such commodity have been fixed as herein provided, ask, demand, or receive a higher price, or whoever shall, with knowledge that the regulations have been prescribed as herein provided, violate or refuse to conform to any of the same, shall, upon conviction, be punished by a fine of not more than $5,000 or by imprisonment for not more than two years or both. Each independent transaction shall constitute a separate offense.

Nothing in this section shall be construed as restricting or modifying in any manner the right the Government of the United States may have in its own behalf or in behalf of any other Government at war with Germany to purchase, requisition, or take over any such commodities for the equipment, maintenance, or support of armed forces at any price or upon any terms that may be agreed upon or otherwise lawfully determined.

Price Enhancement by Hoarding or Wilful Destruction Forbidden.

Sec. 26. That any person carrying on or employed in commerce among the several States, or with foreign nations, or with or in the Territories or other possessions of the United States in any article suitable for human food, fuel, or other necessaries of life, who, either in his individual capacity or as an officer, agent, or employe of a corporation or member of a partnership carrying on or employed in such trade, shall store, acquire, or hold, or who shall destroy or make away with any such article for the purpose of limiting the supply thereof to the public or affecting the market price thereof in such commerce, whether temporarily or otherwise, shall be deemed guilty of a felony and, upon conviction thereof, shall be punished by a fine of not more than $5,000, or by imprisonment for not more than two years, or both: Provided, that any storing or holding by any farmer, gardener, or other person of the products of any farm, garden, or other land cultivated by him shall not be deemed to be a storing or holding within the meaning of this Act: Provided further, that farmers and fruit growers, co-operative and other exchanges, or societies of a similar character shall not be included within the provisions of this section: Provided further, that this section shall not be construed to prohibit the holding or accumulating of any such article by any such person in a quantity not in excess of the reasonable requirements of his business for a reasonable time or in a quantity reasonably required to furnish said articles produced in surplus quantities seasonally throughout the period of scant or no production. Nothing contained in this section shall be construed to repeal the Act entitled "An Act to protect trade and commerce against unlawful restraints and monopolies," approved July 2nd, 1890, commonly known as the Sherman Antitrust Act.

To Sell Fertilizer at Cost.

Sec. 27. That the President is authorized to procure, or aid in procuring, such stocks of nitrate of soda as he may determine to be necessary, and find available, for increasing agricultural production during the calendar years 1917 and 1918, and to dispose of the same for cash at cost, including all expenses connected therewith. For carrying out the purposes of this section, there is hereby appropriated, out of any moneys in the Treasury not otherwise appropriated, available immediately and until expended, the sum of $10,000,000, or so much thereof as may be necessary, and the President is authorized to make such regulations, and to use such means and agencies of the Government, as, in his discretion, he may deem best. The proceeds arising from the disposition of the nitrate of soda shall go into the Treasury as miscellaneous receipts.

Will the British Empire Restrict American Packing Interests After the War?

Previous to the last few years the import and export trade in meat was largely British. Great Britain was the chief importer, and the British colonies the great exporters of frozen beef, lamb and mutton. It is estimated that 95 per cent of the business was inter-imperial. In 1916, however, the British Empire's shipments of frozen meat amounted to only 291,827 tons, nine-tenths of which came from Australia and New Zealand, whereas the foreign production, largely Argentine, totaled 623,553 tons. The United States shipped 80,255 tons, and imported 15,921 tons. The imports of the United Kingdom were 533,811 tons, while Continental, Mediterranean and Eastern markets took 365,648 tons. Weddell & Co., one of the largest meat handling firms in Great Britain, call attention to these figures and say:

"There is every prospect that after the war, Germany, Austria, Belgium, and probably other European countries will require to import refrigerated meats, thereby increasing the difficulty of securing the quantities needed for this country.

"It might be expected that the insufficient supplies produced within the Empire would be kept entirely under British control, and made definitely available for British consumption; but even these are now being exploited by powerful foreign interests in both Australia and New Zealand, while the changing position in Canada and South Africa is being kept under close review by the same operators.

"These foreign interests are very largely American, and it may therefore appear to be unnecessary to anticipate trouble in any such connection; but, unless British interests as such are preserved, fostered and developed as against all others, the day cannot be far distant when our imported supplies of meat will be controlled entirely by non-British capitalists, with unlimited financial backing. So long as Great Britain was the only consuming market, the competition of foreign countries could be ignored almost entirely; but with large new consuming markets being developed, the power of these operators to influence prices, and to control the supplies sent to the market, is likely to be magnified many times, and not to the advantage of this country.

"During the war the menace has been accentuated by many different happenings, each of them, perhaps, quite a natural development from the position existing when the war broke out; but their cumulative effect has been to establish these interests more powerfully than ever, as against their competitors within the Empire. The large profits secured by supplying the British, French and Italian armies, even under government control of freight and prices, have greatly strengthened their financial position—the more so as their profits are not liable to the same heavy taxation as British profits. They have also been able in many ways to extend and strengthen their business connections in this country at the expense of their British competitors. The positions now being established by them as exporters in different parts of our dominions must ultimately make it very difficult to differentiate in any way, as it is hoped may be done after the war, in favor of British as against foreign trading interests.

"It cannot be too forcibly pointed out that, under these conditions, the interests of many British meat producers and traders within the Empire are likely, if not certain, to become more and more subordinated to the aims of a group of able and powerful foreign capitalists. These men, in the exercise of what are no doubt their legitimate though overwhelming trading rights, can hardly avoid crushing out of existence the smaller independent British traders, and they will almost inevitably do so unless their momentum can be checked in some way by Government action, either here or in the overseas dominions.

Recent Food Decisions of Department of Agriculture

Food Inspection Decision 170.—Sweetened Condensed Milk, Condensed Skimmed Milk, Sweetened Condensed Skimmed Milk, Dried Milk, Dried Skimmed Milk, and Malted Milk.

The following definitions and standards for sweetened condensed milk, condensed skimmed milk, sweetened condensed skimmed milk, dried milk, dried skimmed milk and malted milk were adopted by the Joint Committee on Definitions and Standards, August, 7, 1916, and were approved by the Association of American Dairy, Food and Drug Officials, August 10, 1916, and by the Association of Official Agricultural Chemists, November 22, 1916:

Sweetened condensed milk, sweetened evaporated milk, sweetened concentrated milk, is the product resulting from the evaporation of a considerable portion of the water from the whole, fresh, clean, lacteal secretion obtained by the complete milking of one or more healthy cows, properly fed and kept, excluding that obtained within 15 days before and 10 after calving, to which sugar (sucrose) has been added. It contains, all tolerances being allowed for, not less than 28 per cent of total milk solids and not less than 8 per cent of milk fat.

Condensed skimmed milk, evaporated skimmed milk, concentrated skimmed milk, is the product resulting from the evaporation of a considerable portion of the water from skimmed milk and contains, all tolerances being allowed for, not less than 20 per cent of milk solids.

Sweetened condensed skimmed milk, sweetened evaporated skimmed milk, sweetened concentrated skimmed milk, is the product resulting from the evaporation of a considerable portion of the water from skimmed milk to which sugar (sucrose) has been added. It contains, all tolerances being allowed for, not less than 28 per cent of milk solids.

Dried milk is the product resulting from the removal of water from milk, and contains, all tolerances being allowed for, not less than 26 per cent of milk fat and not more than 5 per cent of moisture.

Dried skimmed milk is the product resulting from the removal of water from skimmed milk and contains, all tolerances being allowed for, not more than 5 per cent of moisture.

Malted milk is the product made by combining whole milk with the liquid separated from a mash of ground barley malt and wheat flour, with or without the addition of sodium chlorid, sodium bicarbonate, and potassium bicarbonate in such a manner as to secure the full enzymic action of the malt extract and by removing water. The resulting product contains not less than 7½ per cent of butter fat and not more than 3½ per cent of moisture.

213. Mustard Seed Standard and Assay Method.

Mustard seed is the ripe seed of *Sinapis alba* L. (white mustard), *Brassica nigra* (L.) Koch (black mustard), *Brassica juncea* Hook. f. et Th. or the varieties or closely related species of the types of *Brassica nigra* and *Brassica juncea* Hook. f. et Th., e. g., *Brassica cernua* Thunb., containing not more than 5 per cent of other seeds or other foreign matter and yields not more than 5 per cent of total ash nor more than 1.5 per cent of ash insoluble in hydrochloric acid. Mustard seed, except that obtained from *Sinapis alba* L., yields a volatile oil similar in character and composition to the volatile oils yielded by the above-mentioned species, and when assayed by the method prescribed the yield of volatile oil is not less than 0.6 per cent, calculated as allylisothiocyanate.

217. Amendment No. 5 to Interstate Quarantine Regulations, 1916. Prohibiting the Interstate Transportation of Clams and Oysters Grown or Handled Under Insanitary Conditions.

The following regulation, section 38, is hereby added to the Interstate Quarantine Regulations:

Sec. 38. After notification in writing by the proper health authorities, common carriers shall not transport nor accept for transportation in interstate traffic nor shall any person, firm or corporation offer for transportation in interstate traffic, any oysters, clams or other shellfish which have been grown, fattened, or handled in such a way as to render them liable to become agents in the interstate spread of disease, and the surgeon general of the United States Public Health Service shall from time to time cause sanitary inspections to be made by officers of the Public Health Service of beds used for growing or fattening oysters, clams, or other shellfish and of shucking houses and other similar places in which oysters, clams, or other shellfish are shucked or otherwise prepared for interstate shipment, and he may forbid the interstate shipment of any such oysters, clams, or other shellfish which are produced or handled in a manner which will render them liable to become agents for the interstate spread of disease.

W. G. McAdoo, Secretary.

218. Labeling of Tuna and Similar Fish.

Consultation of authorities upon the subject shows that there is no tuna family as such, but that tuna and similar fish are members of the *Scombridoe* or mackeral family.

The true or leaping tuna is of the genus *Thunnus* of the above family. The members of the genus *Germo* are closely related to the true tuna and according to common usage may be considered as also being entitled to the designation "tuna." The bureau therefore, after consultation with the Bureau of Fisheries, considers that the following fish may properly be called tuna:

Leaping tuna, *Thunnus thynnus.*

Long-finned tuna, *Germo alalunga.*

Yellow-fin tuna, *Germo macropterus* or *Germo germo.*

At the present time the bureau does not consider it necessary for a statement of the actual species of tuna to appear upon the label. Fish designated as tuna should, however, be one of the species enumerated above.

The words "tuna" and "tunny" are considered synonymous when applied to fish. The choice of one or the other of these words depends mainly upon the locality, tuna being more generally used on the Pacific coast.

"Albacore" strictly is the name for the members of the genus *Germo,* but is also frequently applied to the *Thunnus,* so that any fish properly called "tuna" may also be called "albacore."

Certain fish which are sometimes, although incorrectly called little tunnies, bonito tuna, or ocean bonito, are members of the genus *Gymnosarda.* The species are the *Gymnosarda pelamis* and *Gymnosarda alleterata.* They are not true tuna, although closely related. Long standing and general usage, particularly in Europe, justifies the use of the word "tuna" if properly qualified in describing them. The Bureau of Fisheries states that the designation "striped tuna" is sanctioned by usage and is sufficiently descriptive to distinguish these fish from those of the genera *Thunnus* and *Germo.* The designation "little tuna" or "little tunny" as applied to *Gymnosarda* is objectionable owing to the probability of its being misinterpreted or misunderstood to mean a young fish of another species. The designation "bonito tuna" or "ocean bonito" as applied to *Gymnosarda* is misleading, as the true bonito is not a tuna or striped tuna, but is a different fish belonging to the genus *Sarda.*

The genus *Sarda* includes:

Bonito or bonita, *Sarda sarda.*

California bonito or skipjack, *Sarda chilensis.*

These fish should not be designated as "tuna," with or without qualification, but should be sold under their own names. The Bureau of Fisheries considers bonito of quality equal to, or better than, tuna and believes that if marketed under its own name and upon its own merits it would be received favorably by the consuming public.

The fish sometimes, but improperly, called "yellowtail tuna" is not a tuna. This species is the *Seriola dorsalis* and belongs to the Carangidae or pompano family. The proper name for this fish is the "yellow tail." The term "amber fish" has also been used to designate this species, and the bureau offers no objection to the use of that term. It is improper to use the family name "pompano" or "pampano" to designate the species *Seriola dorsalis.*

219. Beans Containing Prussic Acid Denied Entry.

Beans offered for entry into this country from India or the East Indian Colonies, commonly known as Indian, Java, Kratok, Moon, Rangoon or Burma, and representing certain varieties of *Phaseolus lunatus,* have been found to contain hydrocyanic acid. The importation of or trade in these beans is restricted in certain European countries. The department will recommend the exclusion of any importation of beans which upon examination are found to contain any appreciable amount of hydrocyanic acid, on the ground that they might be dangerous to the health of the people of the United States.

220. Greek Currant Jelly.

In this country the article known as currant jelly is commonly made from red or white currants (*Ribes rubrum*), although black currants (*Ribes nigrum*) are sometimes used. An article made from any variety of raisin or raisin grape is not entitled to be called currant jelly without qualification. The Greek, or Zante, currant (*Vitis vinifera*) is a variety of raisin or raisin grape. The jelly made from Greek currant is, therefore, not entitled to be called currant jelly, but should be labeled Greek currant jelly. Articles of food containing Greek currant jelly should not be labeled in such a manner as to indicate that they contain currant jelly.

221. Use of Pectin in Jelly.

In the preparation of jellies and similar products from fruits which are deficient in pectin no objection is made to the addition of pectin in small quantities when the addition of the pectin does not serve to conceal damage or inferiority, for example, inferiority due to the use of an insufficient amount of fruit, or to introduce any ingredients which may render the product injurious to health, provided the presence of the added pectin is declared on the label, and provided further that the pectin has been prepared from clean and sound materials.

222. "Honeydew" Honey Should Be So Labeled.

Circular 19, Standards of Purity for Food Products, states that "*Honey* is the nectar and saccharine exudations of plants gathered, modified and stored in the comb by honey bees (*Apis mellifica* and *A. dorsata*); is lævo-rotatory, contains not more than 25 per cent of water, not more than 0.25 per cent of ash, and not more than 8 per cent of sucrose."

"Honeydew" honey usually exhibits plus rotation at 20 degrees C., a high plus rotation of the inverted solution at 87 degrees C., an ash content much greater than 0.25 per cent, and high nonsugar solids, and is usually characterized by a very dark color and a peculiar molasses-like flavor. The bureau is of the opinion that this product should be labeled and sold for what it actually is, namely, "Honeydew" honey, so that purchasers may not be misled to believe that it is the product commonly known as honey.

223. Use of the Term "Sparkling" When Applied to Fermented or Unfermented Artificially Carbonated Beverages.

The bureau is of the opinion that the term "Sparkling" does not correctly describe either fermented or unfermented artificially carbonated beverages, and that it should not be applied to these articles. This opinion is supplementary to that of Item 174 in S. R. A. Chem. 17 relative to the use of the term "Sparkling Wine."

224. Labeling of Wines.

It is the opinion of the bureau that the terms "Burgundy," "Champagne," and "Sauterne," without qualification, are properly applied only to products from France, and that the terms "Malaga" and "Tokay," without qualification, are properly applied only to products from Spain and Hungary, respectively. A wine produced in a country other than that specified for the kind mentioned, which possesses all the characteristics of the particular wine as produced in the specified foreign country, will not be regarded as misbranded if the terms "Burgundy," "Champagne," "Sauterne," "Malaga," or "Tokay," as the case may be, are qualified by the name of the state or country where the wine is produced. The geographical qualification should be displayed with prominence equal to that of the name which it qualifies.

225. Declaration of the Quantity of the Contents of Mushrooms, Olives and Pickles in Package Form. (Amending Opinion 77, S. R. A. Chem. 8, and Opinion 99, S. R. A. Chem. 11.)

The bureau has investigated trade usage in the packing and sale of olives in brine, mushrooms in brine, and also of pickles in brine, vinegar and sweetened vinegar.

It is of the opinion that the quantity of the contents should be declared upon packages of mushrooms in brine in terms of the weight of the drained mushrooms.

The quantity of the contents should be declared upon packages of olives in brine in terms of the weight of the drained olives, except that, when using containers in such shapes that when filled to capacity there is no material difference between the volume of the drained product and the liquid measure of the container, the contents may be declared in terms of liquid measure of the drained olives.

Pickles in brine, vinegar, or sweetened vinegar, may be marked in terms either of weight of the drained product, or liquid measure of the drained article, or of numerical count in accordance with the usual trade practice for the particular article. This opinion is not intended to apply to chowchow or similar relishes, the quantity of which may be declared as a whole.

226. Use of Standard Containers Does Not Obviate Necessity for Declaration of Quantity of Contents Required by Net Weight Amendment.

Numerous inquiries have come to the bureau regarding the requirements of the Net Weight Amendment to the Food and Drugs Act as applied to food products in standard barrels and to small fruits in climax baskets, and in other standard containers, in view of the requirements of the Standard-Barrel Act (March 4, 1915) and the Standard-Container Act (August 31, 1916).

The bureau is of the opinion that these laws in nowise conflict in their requirements, and that in case of food in package form, even though standard containers are used, it is necessary to mark the packages with the quantity of the contents. It will be noted that paragraph (*e*) of Regulation 29, as amended by Food Inspection Decision 168, admits of the use of the term "one United States standard barrel" as a unit of dry measure for use upon standard barrels which are filled to capacity with food products.

This opinion is not intended to revoke the previous public announcement (Item 155, S. R. A. Chem. 16) to the effect that, pending a determination of the question whether the Net Weight Amendment applies to berries in small open containers, the department will not recommend proceedings under the act solely upon the ground that the individual containers bear no statement of the quantity of the contents. As previously announced, however, the department is of the opinion that crates containing berries, peaches and tomatoes in small open containers constitute food in package form, and the law requires that the crates be marked with a statement of the quantity of the contents, which statement should include the number of small containers and the quantity of the contents of each.

227. Treasury Decision 37125. Food and Drugs Act—Spirits from the United Kingdom. Gin Exempted Under the Provisions of the British Restriction Act.—T. D. 36706 of October 2, 1916, Modified.

Treasury Department, April 18, 1917.

To Collectors of Customs and Others Concerned:

The department is advised by the Secretary of Agriculture that information has been received from the British Foreign Office, through the State Department, to the effect that "domestic" gin (manufactured in Great Britain) is exempted from the restrictions on immature spirits under the provisions of section 1 (1) (*b*) (*i*) of the Immature Spirits (Restriction) Act, 1915. This product will, therefore, not be subject to the requirement of T. D. 36706 (Item 204, S. R. A. Chem. 19), that shipments of spirits of British origin be accompanied by a certificate to the effect that the goods have been warehoused for a period of at least three years.

Byron R. Newton, Assistant Secretary.

Making Salt Blocks by Hydraulic Pressure

By Frank B. McMillin,
General Manager and Secretary of The Hydraulic Press Manufacturing Company of Mount Gilead, Ohio.

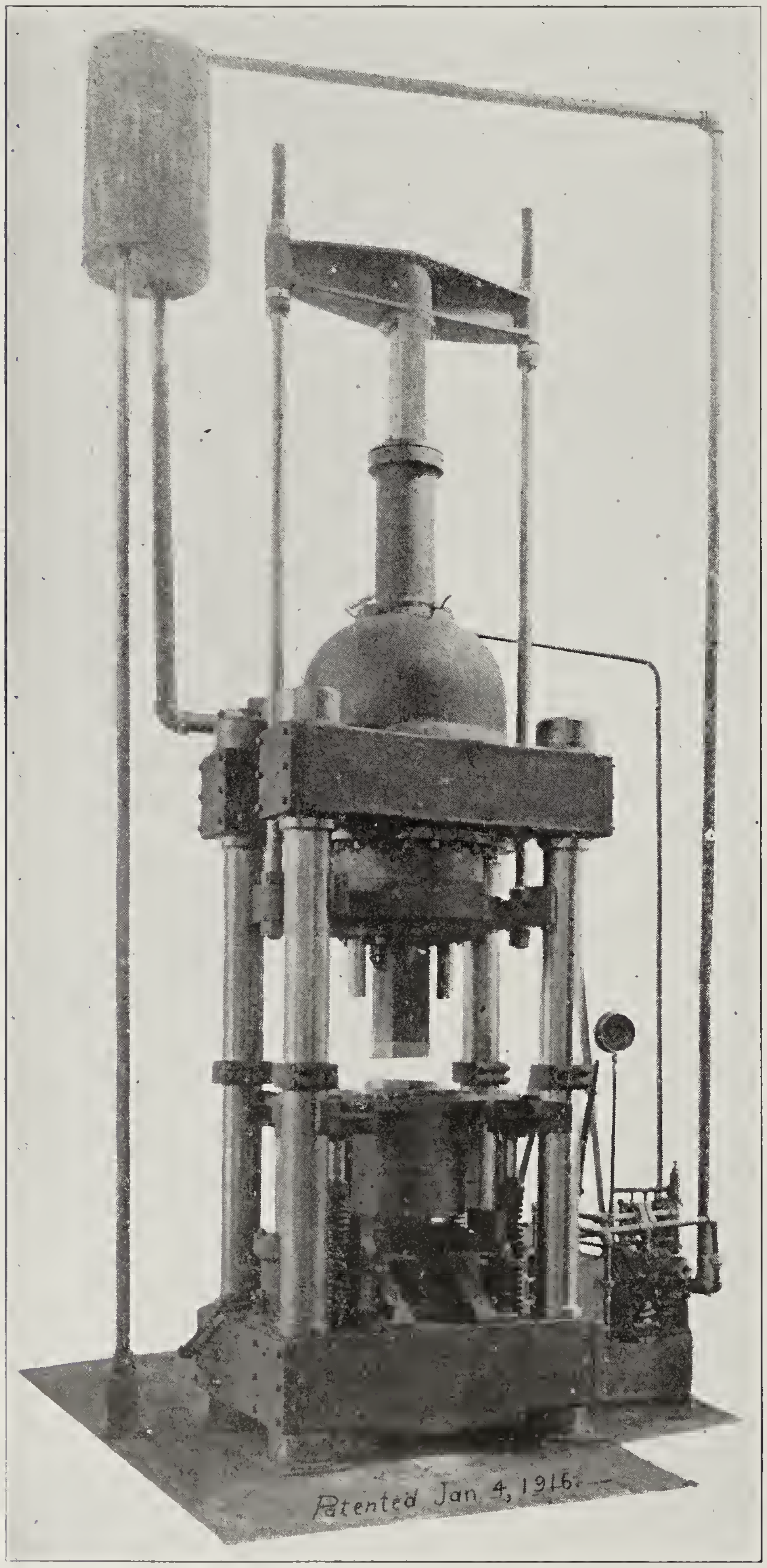
MANUFACTURERS and producers of both evaporated and rock salt have long felt the need of efficient and profitable methods of producing commercial salt blocks of uniform size, weight and density for the prevention of waste and for convenience in handling and shipping.

Both evaporated and rock salt are secured from the same source, evaporated salt being originally rock salt. Rock salt manufacturers secure their material in the same manner as coal is mined, a shaft being sunk and the salt removed in lump form. Similarly it passes over screens for obtaining different grades for various purposes. Evaporated salt is obtained by drilling a hole into the rock salt bed and casing the hole in the same manner as producers of petroleum and natural gas case their oil and gas wells. Tubes are sunk into the casing and the latter sealed at the top. Water is then pumped through the casing down into the salt bed for dissolving the salt, the resulting brine being forced out and evaporated.

The natural block of rock salt as it comes from the mine, is used quite extensively for stock feeding purposes because it is slow to evaporate and does not easily break up. The crude blocks are thrown into the field and left for the stock to lick at their will. However, with all of the apparent advantages of rock salt there is considerable waste in mining and handling the natural block. When removing the natural rock salt in large lumps and breaking it up in many smaller pieces and screening it, much loose salt results which is unsuitable for commercial purposes in its natural state. There being no way to dispose of this waste loose salt, the manufacturers have left it to accumulate in piles outside of the mine or in some instances have gone to the expense of hauling it back into the mines.

When this waste salt is left in piles outside of the mine it becomes a menace to surrounding territory, because the rains wash the brine out over the land and down into the streams. This, of course, proves troublesome to the farmers and owners of land surrounding the mine, because it destroys the producing value of the farm land and impairs the natural value of the fresh water streams. So much of a menace had this situation become in rock salt manufacturing centers that it attracted the attention of the federal government as well as individuals located in the affected territory. Thought was then turned to an efficient and profitable method of disposing of this waste and by extensive experiments it was found that solid salt blocks of uniform size, density and weight could be easily made from loose salt if placed under heavy pressure, the resulting block having no tendency to disintegrate from the effects of the weather in the open field. The only action of water is to very slowly wear away the block by dissolution from the outside. When the block becomes wet and is again dried, it appears to be much harder than before the moisture came in contact with it.

When it was found that a good solid block of uniform size and weight could be easily made from loose salt, evaporated salt manufacturers at once saw an opportunity to enter the field formerly enjoyed only by rock salt manufacturers. Prior to this, evaporated salt was very little used for stock feeding purposes because of the inconvenience in handling and the waste of salt in the open field. But by forming their salt into blocks these objections are overcome and manufacturers are enabled to dispose of their waste and off-grade salt as well as a part of their standard product for a purpose formerly monopolized by rock salt manufacturers.



That the artificial salt blocks are much more satisfactory from every point of view than are the natural blocks is evidenced by the fact that rock salt manufacturers are making artificial blocks in preference to the natural blocks. Blocks made by the hydraulic press are equally satisfactory whether they are made from evaporated salt or rock salt.

In the development of the production of artificial salt blocks the hydraulic press and pump manufacturer has stood foremost. Much experimental and development work was necessary prior to producing a design of hydraulic press which would produce a salt block of uniform size, weight and density. A hydraulic press is now designed, built and patented which will produce satisfactory salt blocks quickly and economically. The accompanying photograph is a reproduction of this press, which is built in two sizes, one having a pressure capacity of 1,000 tons and the other 750 tons.

The salt is compressed in a mold into a compact block of uniform density approximately 8¼ inches square by 12 inches high. The salt block is removed from the mold by hydraulic pressure. The block is then removed for shipment or storage.

The press is provided with a surge tank, the base of which is located higher than the main cylinder. By a simple movement of the valve lever the plunger drops to the salt in the mold and the main cylinder is filled with fluid by suction caused by the lowering of the ram as well as by the gravity of the fluid. Thus the first stroke of the pump initiates the pressure upon the salt. After the block forming operation is completed the main ram is returned by means of the auxiliary ram located at the extreme top of the press. This action returns the fluid to the surge tank.

Every operation of this press is easily controlled by hydraulic valves, the levers of which are conveniently located for the operator. The press is operated from an independent steam, belt or motor driven pump or from an accumulator system.

Manufacturers who are using this press claim that the artificial blocks formed on this press have numerous advantages over the natural block, some of which are as follows:

First—The press affords a means by which the waste salt of both rock and evaporated salt manufacturers may be utilized and turned into an asset instead of remaining a liability; thus disposing of a problem which has confronted the federal government as well as the rock salt manufacturers and other individuals.

Second—The pressed block is more shapely and does not have the rough edges and sharp shale inclusions which are the most objectionable features of the natural block, and therefore, does not cut the mouths of the stock as the natural block does.

Third—It has a much greater density than the natural block and will, therefore, last longer and resist the action of the weather longer in the open field.

Fourth—The blocks are all uniform in size and shape; therefore, they pack to a better advantage in the car and are much more easily handled as they all weigh exactly the same.

Fifth—It is possible in manufacturing this artificial block to add sulphur or other ingredients, thus making a medicated block.

Many of the largest manufacturers of both rock and evaporated salt have already installed this type of press for producing salt blocks, although the press was perfected and patented no earlier than the beginning of 1915. The hydraulic salt block press is said to be producing general satisfaction wherever used.

The Best Fly Poison.

To one pint of water add three teaspoonsful of commercial formaldehyde. Then, take one or more ordinarily thin-walled table tumblers and fill each half or more with this solution. Then, take an ordinary saucer and cut a piece of blotting paper in circular form, slightly smaller than the saucer. Place this in the saucer and then invert the saucer over the tumbler, and holding the hand on top of the tumbler and the saucer, quickly invert. Then, place a match under the edge of the tumbler. This will break the air seal and allow the fluid to percolate slowly into the blotting paper, keeping it moist, from which the flies can drink. This, it is believed, is a safe method of handling this well-known preparation, and which has been proven to be as effective as any that have been tried.

Alfalfa Flour a Possibility*

By Elizabeth C. Sprague,
Professor of Home Economics at the University of Kansas

THE use of alfalfa as a feeding stuff for stock has led to a number of attempts to convert it into a product suitable also for human beings. Several years ago an agent for one of the large farm machinery companies reported that alfalfa flour, tea and coffee were actually in use in some parts of the West. At his request experiments were undertaken to test the desirability of such products.

The leaves of the plant were dried as quickly as possible and pulverized by passing through a meat grinder. The resulting powder apparently contained little or no starch, had no thickening power and was not a flour in the true sense of the word as applied to cereal flours.

Ten grams of this powder was blended with 100 grams of white patent wheat flour and the blended flour made into biscuits. These when baked were very dark green in color and had a rank, "weedy" taste. Since our enjoyment of food is influenced partly by the color and the presence of such an unusual color in bread would probably raise an insurmountable prejudice, an attempt was made to remove the coloring matter. Efforts to bleach it by several agents proved unsuccessful, therefore we resorted to the solvent action of alcohol.

Successive extractions were made using 95 per cent alcohol in the cold. The use of boiling alcohol or allowing it to stand for 24 hours did not increase the effectiveness of the solvent. The chlorophyll seems to be very easily dissolved, the chief factor being the quantity of the solvent. For 50 grams of the powdered alfalfa 1,500 c. c. of alcohol was required. The extracted powder was a dark brownish gray.

Blended in the same proportions as before with white flour, a rather palatable biscuit was produced. The rank weedy taste had been removed and it seemed to be proved that it is possible to use a limited amount of alfalfa as a food if so modified and blended.

These experiments have recently been repeated with the especial purpose of improving the method of extraction. In the first extractions were made by shaking the powder with alcohol, allowing it to stand, then decanting and filtering. Recently the extraction has been made in a Soxhlet apparatus which is much more simple and effective.

The size of the apparatus required the use of 250 cc. of alcohol, which seemed to be equally effective with either a five or a ten gram sample. From two to two and one-half hours was required to complete the extraction when siphoning occurred every ten to fifteen minutes. At first there was considerable difficulty on account of bumping. A bumper made from a glass tube sealed at one end, removed this difficulty entirely.

When the alcohol was recovered by distillation the loss from all sources amounted to 35 cc., or about 14 per cent. As the apparatus was by no means mechanically perfect, it is believed that this loss could be substantially reduced and that the cost of refining the product on a large scale need not be prohibitive.

The chemical composition of the flour before and after extraction is as follows:

				Carbohydrates		
	Water.	Protein.	Ether Extract.	Fiber.	N. free extract.	Ash.
	%	%	%	%	%	%
Original alfalfa flour ...	6.24	27.62	3.76	16.00	43.12	3.26
Extracted alfalfa flour..	5.67	27.69	0.45	17.70	44.95	3.54

The nitrogen has been calculated as protein, using the factor 6.25; the carbohydrate other than fiber has been obtained by difference. The treatment with alcohol has not greatly altered any nutrient except the ether extract. Analyses of similar products from various sources show a great diversity of results. A protein content as low as 14.6 has been found in alfalfa hay (*Henry*) and an ash content as high as 14.5 per cent in alfalfa leaves (*Henry*). Forbes has shown a considerable modification in the composition of alfalfa due to irrigation and Grindley has found a great variation at different stages of growth. All analyses, however, are characterized by a high protein and a high ash content. The figures which are used in this discussion are conservative estimates.

The effect of adding the alfalfa product to the cereal flours is given below. The data is in terms of grams of nutrients yielded by a given quantity.

Nutrients Yielded by Flours, Meals, Etc.

				Carbohydrates		
	Water.	Protein.	Ether Extract.	Fiber.	N. free extract.	Ash.
	Gr'ms.	Gr'ms.	Gr'ms.	Gr'ms.	Gr'ms.	Gr'ms.
100 grams whole wheat flour	10.81	12.26	2.24	....	73.67	1.02
100 grams patent wheat flour	10.35	11.08	1.15	....	76.85	0.37
100 grams corn meal...	12.0	7.80	1.30	0.8	78.50	0.69
10 grams extracted alfalfa flour	0.62	2.76	0.05	1.77	4.50	0.35

If the alfalfa flour is added to the whole wheat flour in the proportion of 1 to 10, the protein is increased over 20 per cent and the ash over 30 per cent. If it is added in the same proportions to patent flour the increase in protein is about 25 per cent and the ash 100 per cent. With cornmeal, the effect is even greater as regards protein, there being an increase of about 35 per cent. The mineral content would be 50 per cent. In any case the influence of the addition of alfalfa is great.

This proportion of 1 to 10 seems to be the maximum which can be used and still have an edible product. If this amount seems undesirable, it can be reduced one-half and still have a marked influence on the composition of the food product. We have made samples of yeast bread, baking-powder biscuits and corn-meal muffins, using these two extreme proportions. The color is similar to bread made with ordinary whole wheat or rye flour. The taste is slightly different, but not pronounced, and the crumb was fine and tender. Graham bread, with its rather larger proportion of sugar, covered the foreign taste entirely.

The chief value of the product from the dietetic standpoint would probably be in the mineral content. A German investigator reports *(Chem. Abstracts, vol. 9, No. 13, p. 1,800)* that the availability of the nitrogen substances of spinach is very high and that the value of gliadin is increased by the addition of a small amount of spinach powder. If this is true of other green plants, then the nitrogen in alfalfa might also be found to have considerable value.

The distribution of the mineral elements in the total ash is also important. Alfalfa is distinguished by a very high calcium content, high sodium and comparatively high potassium. Apparently its chief value as to the mineral content would lie in its very high calcium which is considered by some investigators to be of prime importance in dietetics.

In general it is considered that a high ash content in food is to be desired since the organism is much better able to handle an excess than to meet a deficiency. Liberal and varied diets are most likely to supply enough of each of the mineral elements.

If, through a shortage in wheat, increased consumption of corn should be necessary, a modification such as is suggested above may be very useful. Corn which is characterized by low protein, calcium and phosphorus has been shown to be deficient as a feeding stuff. Its natural shortcomings are corrected by the supplementary character of alfalfa. It would seem desirable, too, for campers, explorers and troops in the field to use a cereal flour mixture which should have a high mineral content, and one which is basic in character. This can be secured by the method indicated in this paper.

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*Presented before the American Chemical Society, Kansas City, Mo., April 12, 1917.

RETAIL PRICES AUG

Average Price Per Pound	Average Price per 100 Calories	CANNED FOODS	Boston	Lynn, Mass.	Ayer, Mass.	Lowell, Mass.	New Bedford, Mass.	Worcester, Mass.	Springfield, Mass.	Average New England	New York	Harrisburg, Pa.	Detroit
12.8	1.37	String Beans, 1 lb. 3 oz	15	14		15	18	15	15	15.2	14	12	15
12.5	2.84	Corn, 1 lb. 4 oz	15	15		15	18	15	15	15.5	15	15	12.5
11.8	4.72	Peas, 1 lb. 4 oz	13	15		15	14	15	15	14.5	15	12	12.5
9.6	9.60	Tomatoes, 2 lb. 1 oz	19	17		18	25	20	15	19	21	20	20
14.2	5.68	Peaches, 1 lb. 13 oz	22	18	18	18	18	23	20	19.6	23	25	25
13.6	1.94	Pineapples, 1 lb. 14 oz	25	19	28	20	18	25	24	22.7	18	25	30
24.1	3.64	Salmon, red Alaska, 1 lb	25	25	28	25	30	25	25	26.1	26	20	25
49.2	5.34	Sardines, Domestic, 3¼ oz	8	8	15	7		7	8	8.8	9	6	10
		CEREAL PRODUCTS											
7.1	.43	Wheat Flour, 49 lb. bag	350	367	207	400	400	400		354	368		342
7.8	.49	Rye Flour, 24½ lb. bag	190	184	171	196	245	175	159	188	234		179
7.9	.48	Graham Flour, 10 lb. bag	78	75	70	70	75	75	74	73.9	97	50	75
18.9	1.14	Shredded Wheat, 12 oz	10	12	13	12	12	14	12	12.1	12	11	14
13.0	.79	Cream of Wheat, 1 lb. 12 oz	22	21	24	21	24	23	23	22.6	18	25	25
8.9	.49	Quaker Oats, 1 lb. 4 oz	9	10	12	10	10	10	10	10	9	8	10
6.9	.38	Rolled Oats, Bulk, lb	6	6	8	7	6	7	6	6.6	7	6	7
10.7	.67	Rice, Fancy Head, lb	11	9	10	9	10	12	9.5	10.1	10	10	10
25.2	1.54	Kellogg's Toasted Corn Flakes, 8 oz	9	11	12	12	10	12	10	10.9	10	12	15
6.1	.37	Corn Meal, lb	7	6	7	7	6	6	6	6.6	6.6	5	6.5
7.7	.48	Hominy Grits, lb	7	6.5				6	6	6.3	6.6	6	8
10.7	.66	Pearl Barley, lb	6	15	10	10	10	10	8	9.9	10	8	8
9.3	.78	Bread, lb.	8	6.4	10.6	10	8	10	5	8.3	6.4		8
16.5	.87	Crackers, Bulk, Soda, lb	14	15	22	13	15	16	15	15.7	15	15	14
25.6	1.35	Uneeda Biscuit, 4⅝ oz	6		8	7	7	7		7			
12.7	.78	Macaroni, Bulk, lb	12		12	15	12	10	12	12.1	9.5	12	16
		DRIED FRUITS											
14.8	1.12	Evaporated Apples, lb	16	17	14	13	13	18	12	17.1	17		17
15.0		Evaporated Peaches, lb	15	15		12	18	16	13	14.9	15	12	15
15.8	1.36	Prunes, Medium Sized, lb	15	16	18	15	13	18	16	16	16	12	15
		SUGAR AND SYRUP											
9.4	.52	Granulated, lb.	8	9	9.5	8.5	9	9	9	8.9	8.4	9	9.5
8.1	.56	Corn Syrup, 10 lb. pail	80					63		71.5		90	70
21.4	1.45	Comb Honey, lb	25	25	25	25	25	25	23	24.7	25		25
29.0	1.49	Cocoa, Bulk, lb	20	20	22	19		25	23	21.5	33	18	25
		FATS											
45.7	1.31	Creamery Butter, lb	45	43	45	48	42	43	43	44.1	48	45	41
27.1	.66	Pure Leaf Lard, lb	30	25	28	24	26	24	25	26	33	28	23
30.9	.91	Oleomargarine, lb.	32	33	34	32	25	28	30	30.6	30	32	27
51.2	1.28	Italian Olive Oil, qt. tin	85	90	100	90	110	85	75	90.7	96	90	95
29.9	.75	Cottonseed Oil, qt. tin	50	56		65	56	55	55	56.1	50		59
31.0	.78	Corn Oil, qt. tin	55	50		60				55	62		55
5.3	1.71	Milk, qt.	12	11	10	12	13	11	13	11.7	12.5	8	14
31.8	1.53	Cheese, American, lb	28	30	35	30	25	33	34	30.7	34	32	35
26.4	4.40	Eggs, fresh gathered, doz	42	48	48	52	48	48	50	48	48	40	45
		VEGETABLES											
3.3	1.10	White Potatoes, lb	3	3	4	3	3.3	3.2	2.8	3.2	4.5	2.5	2.7
7.0	1.55	Sweet Potatoes, lb									8		
5.1	2.55	Onions, lb.	4	3	5	5	4	5	6	4.6	5	3	5
18.5	1.17	Lima Beans, lb	15	16	18				18	16.7		20	20
19.5	1.24	Navy Beans, lb	18	17	20				17	18	20	20	18
		MEATS AND FISH											
28.0	4.31	Beef Round Steak, lb	37	30	40	42	35	38	32	36.1	28	25	28
32.8	3.90	Leg of Lamb, lb	30	30	32	33	38	25	28	30.9	30	40	30
29.0	3.33	Leg of Mutton, lb	28	32		20		23	22	25	22	38	22
30.3	2.46	Pork Chops, lb	33	24	32	32	28	30	28	29.6	28	35	28
33.5	6.70	Veal Cutlets, lb	45	35	45	45	45	25	35	39.3	35	35	35
40.3	2.12	Ham, Sliced, lb	42	35	40	45	38	40	50	41.6	40		40
34.5	11.89	Chickens, Broilers, lb	35	30	35	32	42	35	28	33.9	35		30
20.9	5.81	Salt Cod, lb	18	20	18	22	22	18	17	19.3	20		25
21.9	2.19	Salt Mackerel, lb	18	15	18	18		18	12	16.5	22	15	22
24.5	5.44	Halibut, lb.	28	23		30	25	18	30	25.7	25		28
24.9	3.89	Salmon, lb.	30	30	18	18	25	20	35	25.1	25		30
18.2	5.69	Whitefish, lb.	18	12		18	10	15		14.6		10	20

, 1917

Chicago	Des Moines	Topeka	San Francisco	Baltimore	St. Matthews, S. Car.	Richmond, Va.	Lynchburg, Va.	Atlanta	Lexington, Ky.	Little Rock	New Orleans
5	15	10	15	15	15	11	15	12.5	20	15	18
15	20	13	15	16	15	13.5	15	20	15	15	16
3	15	12.5	15	18	15	14	15	15	20	15	15
0	20	20	15	18	20	19	18	20	25	20	20
0	30	20	25	20	25	19	25	25	30	25	25
5	30	23	30	25	25	25	30	25	25	30	20
8	25	25	20	28	20	25	20	25	20	30	15
0	15	7	10	10	6	7	7	7.5	20	7	10
0	380	360	330	376	320	332	325	318	370	360	340
5	185	165	175	188					306	170	170
0	90	65	80	80			85	83	83	85	80
2.5	15	13	20	15		12.5	15	15	15	15	15
1	25	17.5	25	25		20	25	25	25	25	23
2	12.5	10	17.5	12	15	10	10	10	12.5	10	10
6	7.5		7	8		5			6.6	7	8
2	10	11	10	12	7.5	11	12	12.5	12.5	10	9
2.5	12.5	14	15	12	13	12	12	12.5	12.5	12.5	12
6	7	6	7	6	5	5	6	6.3	6.2	6	6
6	7.5		7.5	8	5	5	12	8.3	15	6	6
2	10		12.5	7		8	15	15	15	10	12
0	10.3		10	8.8		10	11	7.1	14	10	8
5	20	16	20	20		15	10			12	20
7	7		7.5	8					8	7.5	
8	20		11	12	10	10	15			10	10
			15	16	10	12	12	15	16	15	15
8	15	15	15	14		12	15	15	15	15	17.5
5	15	17	12	14		20	18	17.5	20	15	15
9	10	9.4	10	9	8.5	9	9.5	10	11	9.5	9
5	80	85	65	90	75	75	75	90	100	75	100
5	20	18	20	28	10	25	25	20		20	10
5	30	20	20	25		30	40	35		50	30
0	45	41	50	48	50	50	50	40	50	50	45
5	30	25	30	27	25	27	27	30	25	27	27
9	28	27	33	30		32	30	35	35	35	32
5	100	80	110	110		85	65	85	140	110	89
0	75		40	80	35	38	65	60	60	35	50
0	65		35	40						100	60
0	13	11	10	13	10	12	12		13	13	12
0	35	32	30	36	35	33	35	35	40	30	30
0	38	34	45	40	25	36	35	45	35	35	35
2.7	2.6	2.9	3.5	1.3	4	2.7	3.3	5	2.7	4	5
			10	9.3	1.7			7.5		5	7.5
3.5		2	3	4.8		4	6	5	10	6	5
0	20	20	10			18				18	16
0	23	18	15	24		18		20	25	18	16
9	35	25	20	32	25	30	25	30	25	25	22
0	35	40	30	28		40	40	30	30	20	35
7	30		28	28		30	35		35	20	30
0	30	28	30	32		30	30	35	30	27	30
0	35	30	30	35		35	30	30	35	20	35
5	35	35	50	45		38	40	40	40	40	35
5	40	40	45	35	25	32	35	35	40	25	30
8	20		16	20		15	20	25		25	25
0	30	12.5	35	20		20	20	25	15	25	20
5	25		17.5	35		12	25	30	25	25	
0	25		15	30			30		20	25	17.5
	25		8	25		10	10		25	25	

Notes.

All prices are expressed in cents and fractions thereof.

The figures on the right give the prices in one typical store in each city, in quantities or packed as usually purchased. The figures on the left give the average price per pound and per hundred calories. These are the average of the figures on the right, and do not purport to be an accurate average for the country as a whole. In order to avoid giving undue importance to New England, which is represented by ten cities, an average for that section is used in calculating the final average.

The calorie prices are based upon Sherman's *Food Products.*

In obtaining these prices every possible effort has been made to get them from typical average stores. Both the extremely high priced fancy grocery, giving special service and special quality to the very rich, and the cut price store, dealing in sub-standard goods, are excluded. The figures show what is being paid for food by the great middle class.

Quotations in all cases are on commodities of standard quality; the grades that make up the great bulk of the sales.

The cities selected represent the various sections of the country, and also the cities of different size. The smallest, St. Matthews, is an agricultural center of about 1,500 inhabitants.

By comparison with the prices for July 1st, the prices for August 1st are shown to be a trifle higher. This is probably due to the inclusion of a larger number of small cities in which prices generally rule higher than in the great cities.

THE AMERICAN FOOD JOURNAL acknowledges with thanks the co-operation of the food control officials and the retail grocers who have assisted in the compilation of this table.

Prices in Boston are based on reports from three stores, in Lowell from four stores, in Worcester from three stores, and in Des Moines from four stores.

Modern Methods of Water Purification by Chemical Treatment

By H. E. Barnard

Food Commissioner of Indiana

NO surface water collected from the run-off of an inhabited area can be depended upon for drinking and domestic use until a chemical and bacteriological analysis has proven it potable. Even such waters as those of the Great Lakes contain bacteria which under certain conditions make it unsafe.

The practice of filtering grossly polluted water has within recent years been supplemented by chemical treatment, which in effect sterilizes the water which finally enters the mains. While properly treated and filtered water is practically free from bacteria, the use of chemicals as a germicidal agent remove the last trace of danger and make even good waters wholly safe. The chemical treatment is particularly fitted for use with lake waters which carry no gross impurities and which do not need filtration for the purpose of making them clean.

Hypochlorite of Lime.

The practice of sterilizing water is comparatively new. A few years ago it was unknown; now it is almost universally used. The first germicidal agent was hypochlorite of lime, known commercially as "chloride of lime" or "bleach." This chemical contains about 70 per cent of a mixed salt of calcium chloride and calcium hypochlorite and 30 per cent of impurities and inactive ingredients such as lime and water of hydration. The germicidal power of calcium hypochlorite is not free chlorine as is popularly supposed, but in actual fact the effect is one of oxidation. When chloride of lime is added to water the calcium hypochlorite dissolves in water, producing hypochlorous acid. This acid immediately breaks up into water free chlorine and oxygen and it is to this nascent oxygen that the efficiency is due.

The process of treating water with hypochlorite is not unlike treating the water with ozone. The residual matter left in the water after treatment consists of harmless, odorless and tasteless salts, and the only effect that these have upon the water is slightly to increase its hardness. The fear of consumers to use chemically treated water is wholly unfounded, and indeed at the present time is uncommon. When chemical sterilization is first introduced occasional complaints are received to the effect that the water injures the skin and destroys vegetation. Such reports are not correct and now receive no attention.

The amount of "available chlorine," the term by which the oxidizing strength of the hypochlorite is measured, required to sterilize a given water varies with the amount of organic matter present, and with the turbidity of the water. A very common dosage is eight pounds of the chemical per million gallons. Five pounds is often sufficient for treating a filtered water. The chloride of lime is introduced into the water in solution. It is dissolved in specially constructed tanks from which it is fed through a regulating device in definite quantities either to the raw, settled or filtered water. It is least effective when applied to the raw water and in good practice is usually added to the water in the clear water basin or directly into the large mains. Occasionally water which has been treated with hypochlorite develops an unpleasant taste suggestive of iodoform. This taste is less troublesome if the water is given storage after treatment so that the chemical is thoroughly distributed throughout the supply. In practice it has been found easily possible to reduce the taste by adding sodium thiosulphate to the water after a sufficient length of time has elapsed to complete the sterilizing process.

Liquid Clorine.

Within the last two years chlorine gas liquefied by pressure has come into general use. Its germicidal effect is the same as that of chloride of lime, but the reaction is more direct. Since the gas is practically pure and therefore 100 per cent "available chlorine" only about one-third as much by weight is required as of "bleach."

The chlorine gas is purchased in steel cylinders in which it is compressed at a pressure of over 50 to 100 pounds per square inch. Several types of apparatus are used for introducing the chlorine gas into the water. Since the gas is under pressure it is only necessary to provide for its automatic regular release. This is now done most successfully without necessitating the employment of labor or producing unpleasant tastes or gases as is the case with bleaching powder. Furthermore, there is no lime sludge to dispose of as when bleach is used.

Sodium Hypochlorite.

Common table salt or sodium chlorate may be decomposed by passing an electric current through it. The product formed is sodium hypochlorite which has the same germicidal effect as chloride of lime. The process is comparatively new, and as yet not well known. Its special value lies in the fact that the only raw material necessary is salt. When liquid chlorine or chloride of lime cannot be obtained because of a shortage of chemicals or delays in transportation, this fact makes the process potentially valuable. With cheap electric current and second grade salt obtainable at the customary price, the process furnishes a germicidal agent as cheaply as hypochlorite or liquid chlorine.

The Effect of the Use of Chlorine in the Reduction of Typhoid Fever.

The quality of a water supply is determined by the typhoid death rate. Where the rate is high over a period of years the water supply is almost sure to be polluted. Where the typhoid mortality is low no stronger evidence is necessary that the supply is safe. Data have recently been collected from 100 cities which use chlorine in one form or another in disinfecting the water supply. These supplies scattered throughout the country range from small hamlets to the largest municipalities. In most of the cities the chlorine is used regularly throughout the year as a necessary incident to the proper protection of the water. In other plants the chlorine is used only when a bacterial examination of the water makes it necessary or after heavy rainfalls or other conditions which render the supply abnormal.

Practically every city reports the reduction of typhoid fever following the use of a chlorine disinfectant. Some of the figures are very interesting as showing not only the efficacy of the treatment, but as well, the tremendous saving in lives resulting from the use of chlorine. In Omaha, Neb., the death rates for the four years before chlorine was used were 45.0, 60.5, 73.5 and 14.3, while for the five years since chlorination began the rates have been 10.8, 5.5, 4.8, 2.9 and 4.0. Poughkeepsie, N. Y., reports that it applied liquid chlorine to the raw water at the rate of 3.4 pounds per million gallons and also to the filtered water to the amount of 3.15 pounds. The practice of applying it only to the raw water reduced the typhoid rate 79.8 per cent. This reduction was increased to 92.3 per cent when the chlorine was applied both to the raw water and to the effluent. In Richmond, Va., the deaths from typhoid between 1880 and 1913 ranged from a maximum of 188 to 41.4 up to 1909 when the rate dropped to an average of about 20. For the two years since sterilization was first applied the rate has been 14.1 and 12.3. Both liquid chlorine and hypochlorite of lime are used, although the former is rapidly taking the place of the latter, 60 cities reporting the use of liquid cholrine, 32 of bleach and three of both.

The different water supplies differ widely in the amount of chlorine used. This is regulated naturally by the character of the raw water, and the number of B. Coli contained in it. Liquid chlorine is used in amounts varying from ¼ pound to 8½ pounds. The amount of bleach used varies from ½ pound to 25 pounds, although very few cities use more than 10 pounds.

The cost of adding chlorine is very little. Where liquid chlorine is used no additional labor cost is reported. In most plants where bleach is used a portion of the operating expenses is charged against the chemical treatment. The cost of chemical treatment is indeed almost negligible. It rarely costs more than a dollar per million gallons, and in many cases the cost is below 25 cents. When freedom from typhoid epidemics can be purchased at so insignificant an outlay the continued high typhoid death rates reported from many American municipalities must be accepted as proof of gross neglect on the part of health officers or water company officials.

The effect of the use of chlorine on the bacterial counts of the water are as striking as the decline in the death rate. Taking Indianapolis, Ind., as a typical instance, it is noted that the average bacterial content of the raw water for the past seven years is 2,225 per cubic centimeter. After the water has passed through the slow sand filters the bacterial count is 130 and after liquid chlorine has been applied to the filtered effluent, the count drops to 23 per cubic centimeter. The B. Coli present in the water taken at the same points in the plant averaged 1,173 per 100 c. c. in the raw water and 12 per 100 c. c. in the filtered water, and .64 per c. c. in the chemically treated water which enters the mains.

The almost universal use of hypochlorite or chlorine protects the consumer and breeds in him a faith that is the greatest asset to the water company. But chemical treatment, like filtration, is only efficacious when it is working. When no chlorine is entering the water the supply is as dangerous as before the plant was installed—indeed, it is more dangerous because the faith of the consumer has stopped the practice of boiling his drinking water. During the past year at least four plants with which I am acquainted, all operating chemical purification installations, have on at least one occasion stopped the chemical purification for a period of from two days to two weeks and without advising either the health officer or the consumer of their action. In every case the reason given was "we ran out of chemicals and it was several days before we could get more."

The responsibility of the man at the pumping station who operates the chemical plant is heavy. It is graver than that of the officer on the battlefield, for the lives of hundreds and thousands are in his keeping, not only in a single battle, but night and day, every day in the year.

Commercial Milk Products

By The Editor

MARKET milk, butter and cheese are foods of such enormous importance in the national diet that the other products obtained from milk are dwarfed by comparison, and many people are almost unaware that milk is the raw material in a number of great industries, with annual outputs which are small only when compared to the billion and a half pounds of butter and the three hundred million pounds of cheese that are made every year. In fact, ice cream, although it is frequently thought of as a dairy product of lesser importance, really ranks after butter in total value of output, and the American people spend more than three times as much for it as they do for cheese.

The great development of the ice cream industry has taken place within the last 40 years, but the product itself is ancient. Marco Polo brought recipes for ice cream from Japan in the thirteenth century, and Charles the First pensioned the cook that introduced water ices into England. Ice cream is said to have first made its appearance in this country at a dinner given to George Washington by Mrs. Alexander Hamilton. At present we consume $150,000,000 worth of ice cream a year.

Ice cream making has outgrown the stage of secrecy which it, in common with most other food industries, went through in its infancy, and the recipes and processes are taught by several regular dairy schools. Visitors are welcomed at most factories.

A typical vanilla ice cream is made of the following mixture: 45 pounds of 18 per cent cream, 8 pounds of sugar, 4 ounces of vanilla extract, and 4 ounces of gelatine. This will make 10 gallons of ice cream, testing 15 per cent butter fat. Any other flavor than vanilla can, of course, be used, and there are numerous other variations, the most common of which are the addition of nut meats, fresh or preserved fruits, marshmallows, and macaroons. Eggs are used in Neopolitan ice cream. Mousse is frozen whipped cream, flavored and sweetened. Parfait is made from cream, sugar and egg yolks, with or without nuts and fruits. Aufait is a brick cream, consisting of layers of one or more kinds of cream with solid layers of frozen fruit.

Even without considering the infinite variety of frozen confections that can be classed together as ice cream, the composition of the ordinary vanilla ice cream is not standardized throughout the United States, or even in any one locality. Fifteen per cent of butter fat is very uncommon in commercial ice cream, unless the law requires it. John Phillips Street, chemist of the Connecticut Agricultural Station found samples of ice cream in one Connecticut city with the percentage of milk fat ranging from 2 to 19 per cent. If ice cream is to be considered purely as a confection the proportion of butter fat might perhaps be left to the discretion of the manufacturer, but since it is being considered more and more as a food, which it undoubtedly is, the public is entitled to the same protection that is given it in other food products. Mr. Street made some illuminating remarks in regard to the standards for ice cream as follows:

"The earliest attempts to make a standard for ice cream were based on the composition of cream itself, which in many sections of the country is required to contain at least 18 per cent of fat to be of standard quality. The use of such a cream in plain ice cream made in the normal way without fillers or binders would give a resultant product containing something over 14 per cent of fat. The present government standard, therefore, requires a minimum of 14 per cent in plain ice cream, and 12 per cent in ice creams into which nuts or fruits have been incorporated. This standard, however, has not been accepted by all of the states, standards ranging from 6 to 18 per cent of fat being in force in different parts of the country. Such a diversity of standards is unfortunate, as it entails much hardship on the manufacturer doing an interstate business (this sort of trade constantly increasing), and at the same time leaving the consumer in uncertainty as to the quality of the product he is receiving. In my opinion a standard of 18 per cent is much too high, and even the government standard might be liberalized without any detriment to the consumer. The ice-cream associations individually and through their counsel have foolishly opposed any fat standard for ice cream, but a recent decision of the United States Supreme Court in favor of such a standard should convince them that ice-cream standards have come to stay, and that a properly formulated standard will be the greatest boon honest ice cream has ever received.

"In the manufacture of ice cream on a large scale certain 'fillers' and 'binders' have come into quite general use. A filler is used to give body; a binder, to prevent coarse crystallization on holding for a considerable time. Starch, flour, eggs, and rennet are the most commonly used fillers, but their use is not always attended with success, and they are probably being used less and less. Binders, on the other hand, are very commonly used, especially where the product is shipped to a considerable distance and held for a greater or less time before use. Gelatin and gum tragacanth are the most widely used binders, either under their own names or as fancifully named 'ice-cream powders.'

"The use of binders has caused more or less friction between manufacturers and food officials. The most common arguments against them are that they conceal inferiority and age, that they augment the swell unduly, that they encourage the use of low-grade materials, and that they make difficult adequate food control. The proponents of binders, on the other hand, urge that they prevent granulation and consequent deterioration, that they discourage the return and re-usage of unsold goods, and that their use assists trade regulation.

"The bacteriological infection of ice cream is a very important question and is a potent source of controversy between manufacturers and food officials. It is true that considerable ice cream has been sold in the past that was unfit for human consumption, but equally true is the statement that the great bulk of the ice cream offered to the consumer today is a clean and wholesome product. In the early days of ice cream manufacture, unsanitary basements and factories totally unsuited for the purpose were all too common, but more and more do we find that the progressive ice cream manufacturer realizes that a clean, sanitary factory not only yields a better product, but is also a direct asset in his trade."

The cream used in ice cream must be very slightly acid, and in order to obtain the right body, must be held at a low temperature over night, during which time the viscosity is increased. The difficulty of getting an adequate supply of cream during the summer months has resulted in the use of a homogenized cream, made by mixing unsalted butter and whole or skimmed milk, or milk powder and water in such proportions that the resultant product resembles natural cream. The process of homogenizing cream breaks up the fat globules in such a way that they will not separate by gravity and very slightly by centrifuging.

Modern ice cream making has not lagged behind other industries in the development of highly specialized machinery. The old fashioned wooden tub, with its ice and salt mix is now only seen in the smaller plants. In the city plant of large capacity mechanical refrigeration has displaced ice entirely. The mixture of the cream with the other ingredients takes place in a large tank, which also acts as a preliminary cooler. The freezers are jacketed with a cold brine chamber, and are either continuous, that is, the unfrozen mixture flows in constantly at one end with the frozen cream flowing from the other, or are of the batch type. Inside the freezer, the beater rotates at a high speed—about 250 revolutions per minute. Ice cream freezes at about 30 degrees F. When the ice cream has attained the consistency of thick molasses, it is run out of the freezer and into cans. It then goes to the hardening room, where a temperature of about zero is maintained, and the ice cream is frozen solid.

During the freezing process, the volume of the ice cream increases by half or more. This is almost entirely due to the air that is beaten into the cream. Just before freezing, the cream becomes highly viscous, and it is during this period that most of the swell occurs. As ice cream is sold by volume and not by weight, the aim of the manufacturer is to make the swell as large as possible. It has been found that when the ice cream was drawn off at 29 degrees the swell was 70 per cent; at 28 degrees, 60 per cent; at 27 degrees, 50 per cent; and at 26 degrees, 40 per cent. The 29-degree cream was too soft, but the 28-degree cream was thoroughly satisfactory.

For many years there was a popular belief that freezing destroyed the bacteria in ice cream, but it is now definitely known that bacteria do remain alive, and that some varieties even multiply at temperatures below freezing. In 1907 investigations at Washington, D. C., showed bacterial counts in ice cream running from 100,000 to 400,000,000 per cubic centimeter. For this reason the same care that is required in handling raw milk is needed in making ice cream, and the standards of general care and cleanliness must be, and are, very high.

Condensed Milk.

The condensed milk industry began in 1856 when Gail Borden, Jr., was granted a patent for condensing milk in a vacuum. The boiling point of milk is slightly higher than that of water. At that temperature the sugar caramelizes, the fat melts into oil, some of the albumen coagulates, and a portion of the phosphate salts separate from the casein. These difficulties are avoided by condensing the milk in a partial vacuum whereby the boiling point is reduced to 105 degrees F., and these changes do not occur. Milk is condensed for two purposes: to improve its keeping qualities and to reduce its bulk. There are two kinds, the sweetened, which is generally referred to as condensed milk, and the unsweetened, which is called evaporated milk. Unsweetened milk is sterilized in hot steam after being canned, at a temperature of 245 degrees F. The sweetened condensed milk has cane sugar to the extent of 40 per cent of its bulk added to it, and this is sufficient to prevent the growth of bacteria without sterilization.

By the Federal Food and Drug Act, condensed and evaporated milk are defined as follows: Condensed milk, evaporated milk is milk from which a considerable portion of the water has been evaporated and contains not less than 28 per cent of milk solids, of which not less than 27.5 per cent is milk fat. Sweetened condensed milk is milk from which a considerable portion of the water has been evaporated and to which sugar (sucrose) has been added, and contains not less than 28 per cent of milk solids, of which not less than 27.5 per cent is milk fat.

The milk for condensing purposes must be of rather higher quality than for other purposes, and most of the condensing companies exercise a stricter watch over the producers of their milk than is customary in other lines. In concentrating the milk by evaporating the water, the percentage of acid and other non-volatile chemicals is increased, so that the necessity of having milk of low acidity is apparent.

Leach gives the composition of a good quality of condensed and evaporated milk as follows:

	Condensed (sweetened).	Evaporated (unsweetened).
Total solids	74.29	28.16
Water	25.71	69.24
Milk sugar	11.97	9.85
Cane sugar	41.92	None
Proteids	8.46	8.66
Fat	10.65	8.10
Ash	1.29	1.55
Number of times condensed	2.30	2.20

The establishment and operation of a milk condensery is a much larger proposition than the manufacture of butter or cheese. More milk is necessary within a given radius. A condensing plant is not very prosperous unless it has a supply of at least 50,000 pounds a day. Expensive machinery is necessary, and the amount of steam used is large. However, the profits are proportionately great, and a properly conducted plant with an ample supply of milk generally makes money.

The extent of the condensed milk business will probably be one of the surprises of the next census. In 1909 there was manufactured almost half a billion pounds of condensed milk, divided about evenly between the sweetened and the unsweetened. Since then the demands of the armies in Europe has not only arisen, but the use of condensed milk instead of the ordinary raw milk in cities has continually increased. It is not only used in the tropics, in mining and lumber camps, and in other situations where fresh milk is not obtainable, but is preferred by bakers and candy makers, and there is a growing tendency, especially among the less well to do to substitute it for market milk.

Milk Powder.

If the removal of part of the water from milk is an advantage, it is a natural assumption that the removal of all of it would be still more desirable. Numerous patent were issued during the nineteenth century for methods of making milk powder, but the first apparatus that was a success came on the market in 1902. This consisted in passing a tin film of milk between hot rollers, but this method has since been superseded and the present method of making milk powder is as follows:

Fresh whole milk is drawn into a vacuum pan and a portion of the water removed. This condensation is halted while the milk is still in a fluid condition and before the milk albumen has been cooked onto the walls of the pan. The milk is then sprayed into a current of hot air. The moisture is instantly absorbed by the air, and the particles of milk solids fall like snow. Upon examination they are found to contain less than two per cent of moisture. The hotter the air is the more rapid the drying effect, and the less danger there is of injuring the milk solids by heat. By this method, it is estimated, one pint of milk presents about two acres of surface when sprayed into the air, and the individual particles of milk solids are from one two-thousandths to one ten-thousandth of an inch in diameter.

By adding water again, the milk powder can be changed back into a very close approximation of the original whole milk. It is used by the government at several soldiers' homes and army posts, and has met with favor on the battleships. When milk powder is made from whole milk, however, the fat has a tendency to decompose and spoil it. For this reason, and also for economy, most milk powder is made from skimmed milk. A half-skimmed milk powder is also made.

The manufacture of milk powder is one of the fastest growing branches of the dairy industry The figures for 1910, which were estimated, gave the production in the United States at 8,500,000 pounds. At present these figures are very greatly exceeded. New uses for milk powder are constantly being discovered, and the enormous amounts of skimmed milk and butter milk that are produced and which can not be profitably marketed furnish a tremendous supply of raw material.

Milk Sugar.

Milk sugar is used in modifying milk for infant feeding, because it will not ferment, as a dilutant for strong drugs, and in the manufacture of pentanitrolactose, an ingredient of some high explosives. It is a white powder, about one-hundredth part as sweet as cane sugar.

Milk sugar was first isolated commercially in Switzerland, and for many years our supply came from there. About 1890 the industry began to get a foot hold in this country, and at present the United States not only supplies her own needs, but exports the sugar to Europe, and has practically driven the Swiss sugar off the market. Milk sugar is made from the whey which remains after the manufacture of cheese and casein. The largest factory in the world is in Illinois, and has a capacity of one and a half tons of sugar a day. One hundred pounds of whey contain about three and a half pounds of sugar. The process by which it is obtained greatly resembles the making of cane sugar. The whey is concentrated by evaporation, and when this has proceeded far enough the impure sugar crystallizes out. These crystals are washed with water in a centrifugal machine, and by repeated washings, and recrystallizations, are refined and purified.

Fermented Milk.

When milk or cream is soured by lactic acid bacilli, the casein is precipitated, and very finely divided. If the souring goes far enough so that there is approximately one per cent of lactic acid in the milk, the activity of all germs, including that of the lactic acid bacilli themselves, is very largely checked, so that the product will keep for some time.

Until a few years ago, the only fermented milk that was at all common in this country was buttermilk. When cream is churned, it has normally been soured with the common *B. Lactis acidi*, and the milky portion that remains after the fat has been worked out is almost identical in composition with soured skimmed milk. The churning process, however, has broken up the curd particles, so that they are in a finely flocculent condition. They gradually settle to the bottom of the container, leaving a whey on top, but can easily be remixed by agitation.

Buttermilk, if made from good cream, properly ripened, is one of the pleasantest of the mildly acid beverages, and the absence of the heat producing fats makes it a desirable drink for hot weather. It has a high food value. It contains about ten per cent of solids, mainly casein, albumen and milk sugar, and the lactic acid is not only desirable for the flavor, but has about the same fuel value, when burned in the body, as the carbohydrates.

As the butter making industry became concentrated in localities which are not favorable for the distribution of buttermilk to city consumers, and the city milk supply became a business independent of the creameries, the demand for buttermilk was met by souring skimmed milk with a pure lactic culture. The increase in the demand for buttermilk was a boon to the milk distributors, because their sales of cream leave them with large stocks of skimmed milk on their hands, and the legal restrictions on the sale of skimmed milk make it difficult to dispose of.

In making artificial buttermilk, the skimmed milk, to which five per cent of whole milk has been added, to make the fat content equal to that of natural buttermilk, is run into tanks, and inoculated with a pure culture of lactic acid bacteria. The ripening continues for twenty-four hours, more or less, at a temperature of seventy degrees. When it is thoroughly curdled, the milk is churned, just as in butter making, so that the lumps of casein are broken up. In some jurisdictions this product can not be sold as buttermilk, because it is not actually produced in the manufacture of butter. In composition it is almost exactly the same as true buttermilk, and on the average is probably far superior to the average buttermilk.

In the countries bordering on the Eastern Mediterranean, a soured milk has long been produced, which owes its peculiar characteristics to a type of lactic acid producer called the *Bacillus Bulgaricus*. An objection to both natural and artificial buttermilk is that the precipitated casein settles out in a few hours. The amount of acid also is limited to about one per cent. The *B. Bulgaricus* produces a viscous curd that will not settle out, the milk will contain two or even three per cent of lactic acid, and resulting flavor is more delicious than when the milk is soured in any other way.

It was this bacillus that Metchnikoff hit upon as the "microbe of long life," and the promulgation of his theory was responsible for giving the whole buttermilk industry a tremendous impetus. The therapeutic value of soured milk has been given much study since then, and the extravagant claims made for it and carbon dioxide. A lactic acid fermentation also takes place. Kumiss is an alcoholic milk beverage made from mare's milk by the nomads of Central Asia. Mare's milk contains more sugar than cow's milk, and it also has the property of being fermentable by yeast. American kefir and kumiss is generally made from cows' milk to which some cane sugar has been added, and the latter fermented with ordinary yeast. The carbon dioxide, rather than the alcohol is the desired product, and the amount of sugar added is small. Neither kefir nor kumiss contains over one per cent of alcohol.

Casein.

At the Hygienic Milk Supply Exhibition in Hamburg, there were a number of articles exhibited which, at first glance, seemed to have nothing whatever to do with milk. There were combs, seemingly made of bone, cigar holders with amber colored mouthpieces, knives and forks with handles similar to ebony, ferrules for umbrellas, bells, rings, chess figures,dominoes, and a number of thick slabs of every imaginable marble shade, but of considerably less weight than marble. These articles were all made of galalith, or milk stone, which is made from casein.

Casein is precipitated from skimmed milk and butter milk with commercial sulphuric acid, on a large scale, and when dried, has a number of industrial uses. It makes an excellent glue, and a putty that is used in the wood-working industry. As an ingredient of paint, it has the property of increasing the adhesiveness, and making the paint water-proof. It is especially useful in paints for playing-cards. When casein is treated with formaldehyde, it is converted into galalith, which resembles celluloid. From it photographic films can be made, which are non-curling and non-inflammable. Casein, treated with formaldehyde, is waterproofing, and is used to make waterproof boxes and cartridge cases from cardboard, to coat the inside of beer barrels and wine-have been discarded. It was supposed that the lactic acid would inhibit putrefactive bacterial growth in the large intestine, but the most reliable observers are now of the opinion that little if any of it reaches the large intestines at all. The value of soured milk is in the fact that it is a good food, easily digestible.

A number of different products, all dependent on the action of *B. Bulgaricus*, are used in the near East. The Turks call the product "Yoghoort," the Armenian, "Matzoon," the Balkan people, "kisselo melko," the Sardinians, "gioddu" and the Egyptians, "leben." The Indians have a similar product called "dadhi." In the United States, the scientifically soured milks, made with B. Bulgaricus are called by any one of these foreign names, or by fanciful names intended to suggest them. Their supposed medical value has had a tendency to restrict their use, and to keep the price up to an unreasonable height, considering their actual food value.

Beside the lactic acid fermented milks, there are a few drinks in which an alcoholic fermentation also takes place. Kefir, originating in the Caucasus, is produced by fermentation started by the peculiar "kefir grains." These consist of bacterial threads and yeast cells, held together by dried milk. At least four organisms acting together seem to be necessary to produce kefir. Lactose is not fermentable by ordinary yeast, but in the fermentation set up by the grains, part of the lactose is changed into alcohol casks, and in prepared roofing paper. Casein is an ingredient of a brand of shoe polish, is used as a sizing for cloth, and to "load" silk, to prepare canvas for painting, and to help hold the perfume in toilet soaps.

Of more direct interest to the food industry is the fact that casein is the principle ingredient of a number of proprietary food products, for which great nutritive value is claimed, notably Sanatogen, Lactarine, and Galactogen. The buttermilk poultry food, which produces the milk-fed chicken, is mostly casein, being buttermilk heated to 160 degrees F., the whey separated from the curd, and the latter marketed in barrels as a liquid of thick creamy consistency.

Malted Milk.

Malted milk was invented by William Horlick, of Racine, Wis., and was originally marketed as a food for infants, invalids and aged persons. It is made by evaporating a mixture of rich clean milk, and extract of malted barley and wheat. It is a brownish powder, containing beside the milk solids, maltose and other carbohydrates. The Horlick organization, from the time of its first inception, was very active in hunting out all possible uses for their product, and their great success came when they conceived the idea of selling it, as a food beverage, through the drug store soda fountains. At that time the soda fountain, as an adjunct to the drug store, was in its infancy, and many druggists considered it a nuisance. Malted milk was perhaps the most prominent of the fountain specialties that have given the soda fountain its present importance, and, in a measure, revolutionized the drug business. The demand for malted milk, which is essentially a light lunch, rapidly grew to enormous proportions.

Foods Required to Be Covered in New York City.

The requirements for the covering of food exposed on the street in New York City, as announced by the New York City Department of Health are:

The following must be covered by glass: Confectionery, pastry, cakes, breadstuffs, waffles, ice-cream cones, dried figs, dates, etc., unwrapped candy, sliced watermelon, sliced pineapple, cut cantaloupe, baked apples, candied apples, cucumbers, olives, pickled tomatoes, pickled peppers, pickled fish, herring, smoked fish, cut fish, boiled corn, baked potatoes, dried fruits, barley, hominy, flours, cornmeal, oatmeal, tapioca, cheese, pot cheese.

The following must be covered with netting so arranged as not to rest on the food: Apples, pears, plums, peaches, apricots, tomatoes, etc., strawberries, currants, raspberries, gooseberries, grapes, radishes, scallions, lettuce, horse-radish, celery, water-cress.

No covering is required for the following for the reason that they are pared, peeled or cooked before being eaten: Pineapples, bananas, oranges, lemons, grape-fruit, pomegranate, etc., cucumbers, cantaloupe, watermelon, beans, potatoes, sweet potatoes, artichokes, turnips, corn, onions, beets, cabbage, cauliflower, egg plant, kale, kohlrabi, parsley, parsnips, peppers, spinach, squash, dried beans, dried peas, lentils, rhubarb.

Weld Joins Swift & Co.

L. D. H. Weld, professor of business administration at Yale University, and author of "The Marketing of Farm Products," has become the manager of the research department which was recently established by Swift & Co. He took up his new duties on August 1st.

Mr. Weld was born in Hyde Park, Mass., in 1882. He graduated from Bowdoin College in 1905 and received the degree of A. M. at the University of Illinois in 1907, and of Ph. D. at Columbia University in 1908, both being granted for his work in economics. He was successively instructor in economics at the University of Washington, instructor at the University of Pennsylvania, expert special agent for the United States Bureau of Census, assistant professor and chief of the division of agricultural economics at the University of Minnesota, and for the past two years he has been professor of business administration in the Sheffield Scientific School at Yale University.

Swift & Co.'s newly created department of commercial research will study the broad principles of marketing all produtcs handled by them and will analyze the cost from producer to consumer. Mr. Weld is well fitted to make this department a success in the fullest sense of the word. For the past five years he has specialized on market investigations, both of farm products and manufactured goods. He has written many articles and bulletins on the subjects and his book, "The Marketing of Farm Products," which was published by Macmillan in 1916, is one of the most valuable contributions to the economics of the food industry. All of Mr. Weld's important work has been on the fundamentals of market distribution and the function of the retailer.

Food Reviews

BUTTER-WHEAT—Manufactured by the U. S. Cereal Co., Upper Sandusky, Ohio. Packed in water-proof cartons. Net weight 8 oz. Price, 15c per package.

Butter-Wheat is a flaked wheat product, cooked in pure creamery butter. The process of manufacture consists of parboiling the entire grain, mixing the grains with creamery butter in the proportion of 1 pound of butter to 1 bushel (60 pounds) of wheat, flaking by passing between rollers, and toasting in ovens. A considerable amount of salt is also added. Butter-Wheat compares with other wheat products as shown by the following table.

ANALYSIS OF BUTTER-WHEAT AND OTHER WHEAT PRODUCTS.

	Moisture.	Protein.	Fat.	Carbohydrate.	Ash.
Butter-Wheat[1] ..	8.30	8.50	2.45	74.60	4.35
Typical Wheat[2]..	10.60	12.25	1.75	73.65	1.75
Cracked Wheat[3].	9.30	12.60	2.22	74.42	1.46
Shredded Wheat[2]	8.10	10.50	1.40	77.90	2.10
Wheatena[3]	6.65	14.17	2.28	75.62	1.28
Pettijohn's[3]	9.51	10.56	1.45	76.96	1.52
Flaked Wheat[2]..	8.70	13.40	1.40	74.30	2.20

From this comparison it is evident that Butter-Wheat has several inportant differences from other wheat products. The high amount of ash is explained by the fact that there is present 2.57 per cent of salt.

The U. S. Cereal Co. is the owner of a patent on the process of mixing animal or vegetable fats with flaked cereals, which will probably meet with wide public favor when applied, not only to wheat, but to other products as well. In taste, Butter-Wheat is somewhat reminiscent of buttered pop-corn. In spite of the presence of the butter, the manufacturers guarantee their product not to become rancid, even after long storage or in hot climates.

The chief advantage of Butter-Wheat is in the flavor, which is remarkably attractive, and when eaten as a breakfast cereal, it has a piquancy that is entirely distinctive.

SAWTAY—Manufactured by the Saute Products Co., Woolworth Building, New York City. Packed in tin. 1 lb., 2 oz., 38c; 2 lb., 5 oz., 76c; 4 lb. 12 oz., $1.52.

Sawtay differs from most of the proprietary table and cooking fats in that it consists entirely of a pure vegetable oil—coconut oil—without admixture of any other substance, or any processing other than that necessary to refine it. Coconut oil was one of the first vegetable fats to be used as a butter and lard substitute, and it, with palm nut fat, are the best adapted to this purpose. It has almost the same melting point as butter, and as a melting point below body heat is generally conceded to be an aid to digestion, it shares with butter the advantages of being solid at ordinary room temperatures, but in liquid form when it reaches the stomach.

According to Leach, the oil contains, beside palmitin and olein, large proportions of myristin and laurin. Unlike the other vegetable oils, it contains notable quantities of the glycerides of the volatile fatty acids caproic, capric and caprylic. It is the presence of these three that gives it a marked resemblance to butter, and for some time made it difficult to detect the adulteration of butter with coconut oil, a practice at one time general in Europe, but which seems never to have occurred to any extent in the United States.

Coconut oil has long been much used by confectioners and fancy bakers both where butter was used and in circumstances where butter is unsatisfactory. Sawtay can be used in the home for shortening, instead of animal fats, and it can also be made into an excellent butter substitute at low cost in the following manner. The contents of a tin of Sawtay, creamed to about the consistency of mayonnaise dressing, is mixed in a large egg-beater, with a pint of smooth buttermilk, or milk soured by means of the B. Bulgaricus. When the Sawtay has taken up as much of the milk as possible, it is salted and a capsule of butter-color is added. This is mixed in, and the mixture cooled to solid form in a refrigerator. It is also recommended for mixing with medium grade butter, in the proportion of a can of Sawtay to a pound of butter. This both reduces the cost per pound of the compound butter, and improves its flavor by making it milder. It can also be used as a spread for bread by salting, and coloring, if desired.

It has some advantages over lard as a shortening in that it does not decompose at so low a temperature, and it is said that only about 80 per cent as much Sawtay as lard is necessary to get the same results.

The digestibility of coconut oil has been exhaustively studied, and for all practical purposes it has the same digestibility, and is utilized as fully by the body as the animal fats, and such vegetable fats as olive oil, cotton-seed oil, peanut oil and sesame oil. Langworthy and Holmes, as a result of twelve experiments, lasting for three days, or nine meals, concluded that the coefficient of digestibility was 97.9 per cent. Like all pure fats, coconut oil has a fuel value of about 4,000 calories per pound. As butter contains from 15 to 17 per cent of water and salt, its fuel value is reduced to 3,400 or 3,500 calories.

The consumption of coconut and palm nut butters in Europe is enormous, amounting in 1907 to 120,000,000 pounds. The use in this country is rapidly growing, aided by the continual increase in the price of butter and lard, and by the gradual education of the housewife in the advantages of vegetable fats.

Chemist Added to Mr. Herbert C. Hoover's Staff.

At the request of Mr. Hoover the services of Benjamin E. Jacobs of the Bureau of Chemistry, United States Department of Agriculture, have been obtained for the purpose of assisting the Food Administrator in his work in connection with the baking and milling and macaroni industries. Mr. Jacobs is an investigator and writer on subjects pertaining to these industries, and has been in the Bureau of Chemistry for the past ten years investigating methods of milling wheat into flour, and of making flour into bread. Although an American citizen, the Canadian Government through an "Order in Council" appointed Mr. Jacobs Cereal Technologist in 1914. He was stationed at Winnipeg, where a laboratory was installed for carrying on the work in connection with the Grain Standards Act of Canada. Mr. Jacobs has been connected with some of the largest milling and baking establishments in this country as chemist and technologist.

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[1] Analysis by Columbus Laboratories. Also shows crude fibre 1.80%. [2] Sherman, "Food Products." [3] Leach "Food Inspection and Analysis."

Book Reviews

BACTERIOLOGICAL METHODS IN FOOD AND DRUGS LABORATORIES.—By Albert Schneider, M. D., Ph. D., Professor of Pharmacognosy and Bacteriology, College of Pharmacy, The University of California. P. Blakiston's Son & Co., Philadelphia, Pa. 228 pp. $2.50.

As many of us know, the administration of the Food and Drugs Act and of the laws controlling food and cognate subjects in the several states has made necessary the introduction of bacteriological methods in food and drugs laboratories. Many bacteriological and micro-analytical methods are not yet fully worked out, and Dr. Schneider's book is submitted to analysts in the hope that it may be instrumental in bringing about a unification of present methods, at the same time serving as a guide for the working out of new and possibly better methods. The first 22 pages are devoted to an outline of micro-analytical methods in laboratory work, whereas the balance of the book is devoted to bacteriological methods. The book is well calculated to be of real service to the laboratory worker. It presupposes a thorough knowledge of chemistry, microscopy and bacteriology, and the author very wisely has no hesitancy in referring his readers to more comprehensive works when matters of more than ordinary complexity are under discussion. This book certainly should be on hand in every well equipped laboratory.

A COURSE IN FOOD ANALYSIS.—By Andrew L. Winton, Ph. D. John Wiley & Sons, Inc., New York, N. Y. 252 pp. $1.50.

The author of this book needs no introduction to the readers of this journal. He it is who was in charge of the recent revision of *"Leach's Food Inspection and Analysis,"* and he also is the author of *"The Microscopy of Vegetable Foods,"* recently mentioned in these columns. The present work is reminiscent of both of the titles just mentioned. It is designed to serve as a text book to be used with classes from which will be recruited professional food analysts. The present aroused interest in all that has to do with food will, undoubtedly, cause many schools and colleges to devote more attention to food analysis than has been the case in the past, and any school specifying the use of Winton's "A Course in Food Analysis" may rest assured that a wise selection has been made.

THE ECONOMICS OF RETAILING. By Paul H. Nystrom. The Ronald Press Company, New York, N. Y. 400 pp. $2.

The present agitation in regard to the cost of living concerns itself with two main features, production and distribution. Mr. Nystrom's work confines itself to the latter, having to do with the economics of retail selling. The author traces from its inception the history of merchandising, starting in with the Christian era and carrying his account down to the chain store systems of the present day. He is essentially in tune with the modern spirit, as is indicated by his familiarity with such matters as price maintenance, trade mark advertising and other ultra-modern developments. All who are anxious to have placed before them in interesting, readable form an intelligent survey of modern retailing will find Mr. Nystrom's book highly satisfactory.

ELEMENTS OF WATER BACTERIOLOGY, WITH SPECIAL REFERENCE TO WATER ANALYSIS.—By Samuel Cate Prescott, Professor of Industrial Microbiology in the Massachusetts Institute of Technology, and Charles-Edward Amory Winslow, Director, Division of Publicity and Education, New York State Department of Health. Third Edition, Rewritten. 318 pp. Numerous tables. $1.75 net. John Wiley & Sons, Inc., New York City.

This work was originally published in 1904, with the special purpose of supplying a text-book for the students in the course in the Bacteriology of Water and Sewage, which had been established some time before at the Massachusetts Institute of Technology. It was written, however, with an absence of unnecessary technicality that made it of value, not only to experts, but to laymen who had undertaken the study of water supply with a reasonable preparation in the general principles of bacteriology. A second edition was called for in 1908, and this, the third edition, has been thoroughly revised and rewritten, with the inclusion of much new material.

The improvement in laboratory practice during the past few years is reflected in the fuller treatment given to the 37° count, and the use of the Jackson bile medium for the preliminary enrichment of the typhoid bacillus. The authors have come to the conclusion that the five standard tests for "typical B. coli" are no longer satisfactory, and take the view that the whole group of aerobic lactose-fermenting bacilli are significant. This is reflected in the three chapters devoted to a general discussion of the colon group. The growing importance of the application of bacteriology to the sanitary study of shell-fish has led to the inclusion of a chapter on that subject.

An interesting feature of the book is the large number of tables. Every statement is illustrated with compilations of actual data. Twenty-six pages are devoted to an exhaustive bibliography of the subject.

DR. EVANS' HOW TO KEEP WELL.—By W. A. Evans, M. S., M. D., L. L. D., D. P. H., President of the American Public Health Association, Former Commissioner of Health of the City of Chicago, etc., etc. 1,367 pp. 519 illustrations. 2 colored plates. $3.00. Published by D. Appleton & Co., New York, for Sears, Roebuck & Co., Chicago.

While Dr. Evans was Health Commissioner of Chicago, he was approached by the publishers of the Chicago Tribune with the request that he take charge of a daily column of advice to the people on "How to Keep Well." His work as Commissioner had impressed him with the fact that there was an almost universal ignorance of the methods of avoiding disease, and that the crude half knowledge that existed was as harmful as the ignorance. Half the people are more or less incapacitated by disease, most of which is preventable, and nearly all of which is curable. Most of these people only needed counsel as to the wrong way of eating, sleeping, exercising, worrying, or using alcohol and tobacco. There is a great reservoir of information on medicine that can prevent most diseases and cure most ailments, and it was the opinion of the editors of the Tribune, and ultimately of Dr. Evans, that the newspaper offered a way of making this information available.

To the work of conducting this column, Dr. Evans brought a unique equipment. On the technical side, he had practiced medicine in the country and the city, he had taught pathology and hygiene and sanitation in large medical colleges, he had been active in tuberculosis work, infant welfare work, and other campaigns waged in the interest of preventive medicine. More important, he possessed a fluid, direct literary style, and an abiding common sense.

Dr. Evans' daily contribution took the form of a short dissertation on some important topic, followed by a number of "questions and answers." It is the latter feature that has contributed most to the influence and success of the column, because the questions, although frequently ludicrous, and sometimes silly, were the things that people really wanted to know.

It is these daily contributions, arranged by topics, partly rewritten, and with some new matter on subjects that could not be appropriately discussed in a newspaper, that make up the thirteen hundred large pages of this book. As might be expected from the manner in which it was written, the book is extremely inclusive There are sixty-six chapters, and they cover every subject that comes under the general title of the book. Contagious diseases, health insurance, housing, care of the baby, exercise, first aid, eugenics, the feet, apoplexy, hospital and schools, are a few of the chapter heads that give an idea of the diversity of the subjects discussed. Each chapter consists of general treatment, followed by typical questions and answers.

The two chapters on Foods and Milk occupy about a hundred pages. They contain interesting discussions of the food value of the common foods, of methods of preserving and storing foods. The questions and answers in these chapters are very illuminating, since the answers not only convey information, but the questions illustrate the misconceptions that need to be swept away. The importance of correct diet, however, receives some attention in nearly every chapter, and the work, valuable in every home, will be doubly interesting and valuable to the dietitian.

THE LAW OF PURE FOOD AND DRUGS.—By W. W. Thornton, of the Indianapolis Bar. Appendix contains federal food laws and regulations for their enforcement. 1 113 pages. $7.50. The W. H. Anderson Co., Cincinnati. 1912.

Thornton on Pure Food and Drugs is recognized as a necessity to anybody who needs to be informed as to the laws regulating foods. In this compendious volume, the author has brought together all the data bearing on the national pure food laws, and the regulations under which they are enforced, that existed up to the time that the book went to press.

In Part I is discussed the constitutionality of the statutes, the validity of the ordinances and regulations concerning pure food and drugs, and the power of the states and municipalities to regulate and prohibit, if necessary, their sale. Part II discusses the federal law of 1906. All of the food inspection decisions and notices of judgments, up to 1912, are cited, and many of the decisons are quoted at length. Part III consists of a review of the state, English, Irish, Scotch and Australian decisions of the courts. An effort was made to cite all food cases in the political divisions named. Not only the official citation, but the citation to the West System of Reporters, the American Decisions, American Reports, American State Reports and Lawyers' Reports Annotated are given, where the cases were reported in them.

The whole work is arranged under convenient chapter heads, and is well indexed both topically and by chapters—an important advantage in a work covering such a wide range of subjects.

THE MINIMUM COST OF LIVING.—By Winifred Stuart Gibbs, Supervisor Home Economics, New York Association for Improving the Condition of the Poor, Lecturer in Household Arts, Teachers' College, Columbia University, etc., etc. 93 pages. $1.00. The Macmillan Co., New York City.

This little book, which consists almost entirely of tables, with perhaps five thousand words of perfectly cool, unimpassioned text explanation, is undoubtedly one of the most bitterly ironical compositions in the English language. It is the record of seventy-five New York families, dependent, principally, because of widowhood, on the Association for Improving the Condition of the Poor. Placed in a test-tube, as it were, they were subjected to a long-continued experiment to ascertain what is the least income that will enable a family to exist. In the formal language of science, and in neat, admirably printed tables, we see these widows, with their four, five, or six children, struggling to live; spending half of their total income for food, another quarter for rent, buying just enough clothes to cover their nakedness. What "the minimum cost of living" means can best be seen, perhaps, in the pitiful column of incidentals: tooth paste, 10c; map for school, 10c; spending money, 3c; Joe's club, 5c; postal cards, 7c; darning cotton, 5c, and one item—the only one in the whole year—pleasure, 40c. One wonders what sort of a wild excitement it was that induced this widow to make that reckless entry in her expense book—pleasure, 40c.

But if the book is sad, it is by no means hopeless. Granting poverty as the primary condition, the society made a kindly, and apparently a successful attempt to direct the expenditures in the best way. More milk and less tea, more fruit and vegetables and less meat, more cereals and less bread were the aims of the instruction, and at the end of the first year, most of the families were in good health, or at least their health was greatly improved. The details of the seventy-five dietaries are extremely interesting. Family number 75, for instance, a woman and eight children, with an income of $1,097, ate over a ton of bread, thinly spread with 40 pounds of butter. Among the poorer families, as much as 74 per cent of the total income was spent for food. The lowest percentage spent for food was 34 per cent and the average was between 45 per cent and 50 per cent.

MRS. NORTON'S COOK BOOK. SELECTING, COOKING AND SERVING FOR THE HOME TABLE.—By Jeanette Young Norton. 634 pp. $2.50. G. P. Putnam's Sons, New York City.

This is a thoroughly up-to-date book of recipes. It aims to tell the modern housewife, of a little more than average prosperity, how to prepare the dishes that comfortably situated twentieth-century people eat. The work is dedicated by the author to her son, "whose appreciative enthusiasm inspired the writing." If the various dishes are as good on the table as they sound in the book, the "appreciative enthusiasm" is not hard to account for. Who would refuse the position of laboratory assistant to the author of a cook book?

CITY MILK SUPPLY.—By Horatio Newton Parker, formerly Health Officer of Montclair, New Jersey, Instructor in Municipal and Sanitary Dairying at the University of Illinois, etc. 493 pages. 63 illustrations. 124 tables. McGraw-Hill Book Co. $5.00. New York City.

This is a thoroughly admirable text-book of the city milk business—lucid, well-arranged, and well printed. There are numerous necessary illustrations, and no useless ones. The tables convey information, and are not inserted merely to show that somebody did a lot of work in compiling them. Every chapter is followed by an exhaustive bibliography. Although the first edition was published this year, it has already been accepted by the city milk distributors as the standard work on their field, and to ask a progressive member in the trade if he ever heard of Parker is like asking a Harvard man if he ever heard of Eliot. It is probably destined to become the vade mecum of the milk inspector also.

There is a decided tendency for anyone who writes of the milk business to make it seem either better or worse than it really is. Parker does neither. To the person reading the book—and it is a book that can be read as well as studied—it presents a picture of a great industry, neither perfect nor hopeless. A good example of the style of the book is the paragraph which sums up fifty important pages devoted to the methods and results of pasteurization.

"Pasteurization of milk is accepted as a necessary treatment of the public milk supply not because it is ideal, but because it is practicable. When pasteurization is done right and the milk protected against subsequent infection and when the pasteurized milk is marketed on its merit without extravagant claims in its behalf the process is a great boon to the milk consumer, but when the milk is pasteurized in any old way that will prevent souring, or when the milk is pasteurized over and over again before the consumer gets it, or when pasteurization is used as a club to kill off inspection of dairy farms or tuberculin testing or any other legitimate phase of control of the milk supply, it can be made a curse instead of a blessing. The process probably has enough intrinsic merit to survive any abuse to which it is likely to be subjected but if dairymen and their customers are to enjoy in full the benefits it is capable of conferring it must be used honestly under severe inspection."

FOOD AND THE PRINCIPLES OF DIETETICS.—By Robert Hutchison, M. D. Edin. F. R. C. P., Physician to the London Hospital, Physician with Charge of Out-Patients to the Hospital for Sick Children, etc., etc. Fourth edition. 617 pages. 34 illustrations. 3 plates. Numerous tables, $4.00. William Wood and Co., New York City.

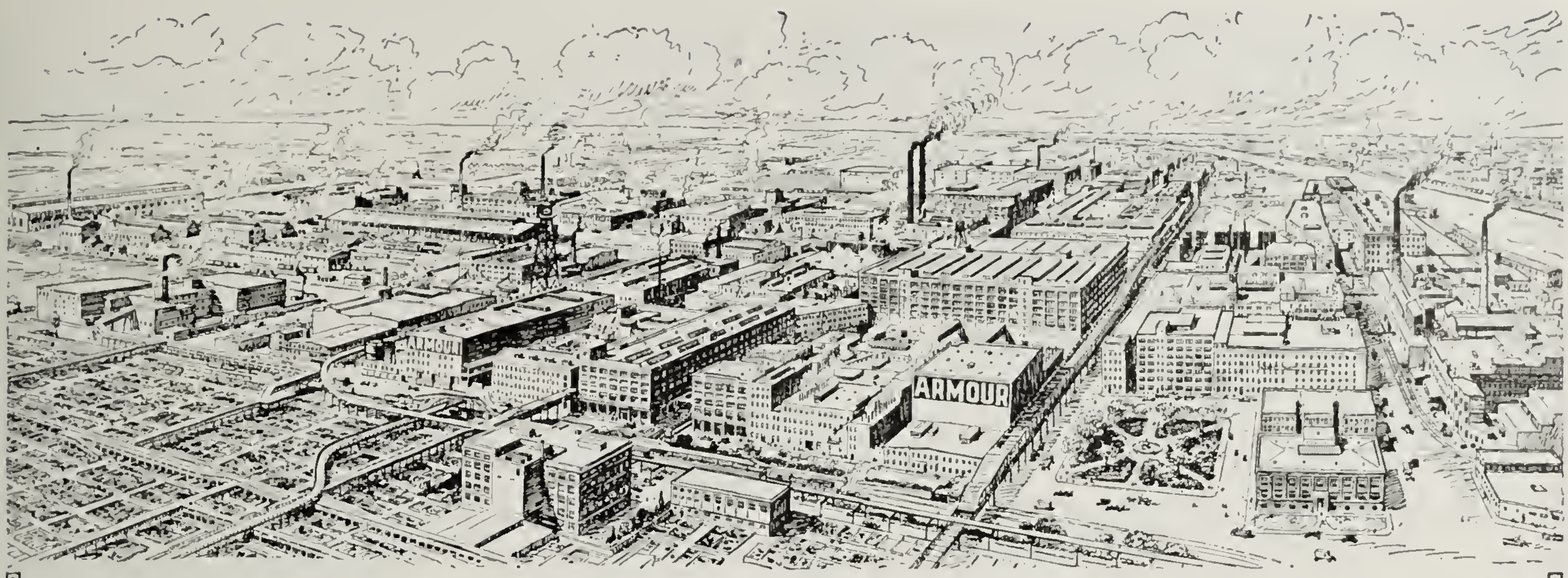
Hutchison was one of the pioneers in the modern science of dietetics, and perhaps the first to bring together the results of the experiments on foods and their digestibility that had been made, largely in the United States, into a comprehensive treatise. The first edition was published in 1900, and since that time no library that makes any pretense of being complete in the subject of dietetics has been without this work.

The fourth edition, by thorough revision, and many minor alterations and additions, has been brought up to date, and is almost as complete a review of our present knowledge of the subject as the first edition was of that of 1900. A section devoted to vitamines gives them the place that they have recently begun to occupy in all studies of foods.

Although this book was written from the British point of view, with special reference to British conditions, the greater part of it is equally applicable to the United States. The only sections in which the American reader feels that he is being neglected are in the very full and interesting discussions of proprietary foods. Since the advantages of package foods are so persistently put before us, and their claims, if accepted without adjustment are apt to mislead us, not only with regard to the food in question, but to our whole diet in general, it is especially important to have some means of getting an impartial statement of their true worth. This Hutchison has done for the Londoner, but he did not extend his researches to this side of the Atlantic.

"Food and the Principles of Dietetics" has the charm of being an interesting book, which unfortunately can not be said of all treatises on this topic. This is partly because it continually answers questions that exist in everybody's mind, and because of the large number of more or less popular controversies which are dealt with, and either dismissed as unsolved, or definitely stated to be solved on one side or the other. There is a pleasure in talking with a positive man, and Hutchinson, without being anything but impartial, does not, after stating both sides of the question, leave his reader to wander alone through No Man's land, harried by the arguments of both sides. For instance, he does not quibble in stating that the arguments against white bread are founded on fallacies.

In addition to treating of the needs of ordinary healthy adults, seven chapters are devoted to infant feeding, and the nutrition of the sick. It is an interesting fact that this classical work is very frequently cited incorrectly—as Hutchinson instead of Hutchison—so that it is almost always safe to assume that where a reference is made to Hutchinson, this is the work that is really meant.



ARMOUR AND COMPANY'S CHICAGO PLANT

IN uncertain times like the present, the importance of a trade-mark on foods takes on increased significance. For, it definitely fixes the responsibility for their origin and, by putting back of them the reputation of their manufacturers, becomes an assurance to consumers of sustained quality. The Armour Oval Label has behind it the jealously guarded Armour reputation of fifty years' standing—far too much at stake for the future to permit of anything but the very highest grade being sold under it.

Armour's QUALITY PRODUCTS

ARMOUR AND COMPANY

UNION STOCK YARDS, CHICAGO

1648

Recent Patents

The following patents of interest to readers of this journal recently were issued from the United States Patent Office. Copies thereof may be obtained from R. E. Burnham, patent and trade-mark attorney, Real Estate Trust Building, Washington, D. C., at the rate of 20 cents each. State number of patent and name of inventor when ordering:

1,230,865. Cover for fruit. Raymond P. Clark, Rochester, N. Y.

1,231,114. Shortener for baking foods. Frederick C. Atkinson, Indianapolis, Ind.

1,231,143. Process of preparing cereal food. John E. Engstad, Minneapolis, Minn.

1,231,396. Machine for dividing and measuring dough. David McErlane, Springburn, Glasgow, Scotland.

1,231,585. Method of packing food products. Paul W. Fleischer, West Hoboken, N. J., assignor to American Can Co., New York, N. Y.

1,231,594. Drier, cooker and baker for foods. William Fullard, Burlington, N. J.

1,231,723. Coffee-roasting machine. John W. Fisse, Leonardtown, Md.

1,231,817. Biscuit-cutting machine. Thomas Vicars, John Vicars, and Edward L. Vicars, Earlstown, England.

1,231,883. Apparatus for electrical sterilization of food. Jacob Hanssen, Christiania, Norway.

1,232,016. Manufacture of margarin. Knud Erslev, Nijmegen, Netherlands.

1,232,126. Raisin-cleaning machine. Inman Tucker, Yuba City, Cal.

1,232,178. Apparatus for treating alimentary pastes. Pilade Barducci, Naples, Italy.

1,232,267. Food compound. John C. Fleming, Boston, Mass.

1,232,271. Method of preserving fruits and vegetables fresh. Helen C. M. Franks, Brooklyn, N. Y.

1,232,697. Candy-pulling machine. Gotthold L. Langer, Portland, Ore.

1,232,758. Process of making dough. Thomas G. Blacklock, Brooklyn, N. Y., assignor to Peter B. Olney, Jr., trustee, New York, N. Y.

1,233,238. Minute cereal and process of making the same. Henry M. Hull, Fairfield, Conn.

1,233,335. Grain-confection machine. Elmer Fletcher, Chicago, Ill., assignor to The Welch Co., same place.

1,233,387. Method of preservation by refrigeration. Jan Morawski, Buenos Aires, Argentina.

1,233,446. Dried milk and method of producing the same. Charles H. Campbell, New York, N. Y., assignor to Borden's Condensed Milk Co., same place.

1,233,974. Raisin-curing apparatus. Miles Burlew, San Quentin, Cal.

1,233,653. Nut-blanching machine. Anton L. Delkin, Sr., Seattle, Wash.

Success of Garden Movement in Chicago.

The Garden Movement in Chicago, which has received the enthusiastic support of many public spirited people, but especially that of Prof. Holden and the agricultural extension department of the International Harvester Co., has been a remarkable success. Twenty-one traction engines and 63 teams were used to plow 130,000 plots, of an average size of 25 by 125 feet. The average cost of plowing was 26 cents per plot. Four hundred and twelve lectures on gardening were given and they were attended by 128,544 people. In addition, 175,000 people called at the Garden Bureau to get information or purchase seeds, and 450,000 packages of seeds were sold. Weather conditions have been unfavorable—an excess of rain and many cold, clammy days—but it is believed that 70 per cent of an average garden crop will be realized. Figuring the value of the vegetables from each plot at $50 (and many qualified persons believe that the average should be nearer $150), the value of the crop will be $6,500,000.

Carnation Milk

"Stays Sweet"

Carnation Milk is just clean, sweet cows' milk, and because it is evaporated to the consistency of cream, hermetically sealed in cans and sterilized, *it "stays sweet."*

Carnation Milk is used in every way that you use raw milk or cream. Use it in cooking, baking, drinking; in coffee; for ice cream and candy-making.

Free Recipe Book

"The Story of Carnation Milk," our free, illustrated recipe book, contains over 100 recipes for plain and fancy dishes. Sent free to *you* upon request. Carnation Milk Products Company, 865 Stuart Building, Seattle, Wash.

Remember—Your grocer has it!

"From Contented Cows"

Wilson's Majestic Label

always guarantees, that the food product bearing it is of the finest quality—and prepared for particular people.

Only four hams out of ten earn the Majestic Label.

Wilson's Majestic Bacon is really the heart of the finest pork sides.

The U. S. Government certifies to the purity and wholesomeness of Wilson and Co.'s products. Look for the Government Inspection mark.

"This mark your guarantee"

WILSON & CO.

Chicago
New York
Oklahoma City

Kansas City
Los Angeles

Report of Cold Storage Holdings, July 1, 1917.

Creamery Butter.

Reports from 289 cold storages show that their rooms contain 47,612,460 pounds of creamery butter while on June 1, 314 storages reported 9,070,869 pounds.

American Cheese.

Reports from 315 cold storages show that their rooms contain 26,662,430 pounds of American cheese, while on June 1, 384 storages reported 4,568,789 pounds.

Eggs.

Reports from 360 cold storages show that their rooms contain 6,064,036 cases of eggs, while on June 1, 384 storages reported 4,568,789 cases.

Frozen Eggs.

Reports from 121 cold storages show that their rooms contain a total of 12,356,962 pounds of frozen eggs, while on June 1, 124 storages reported 7,181,853 pounds.

Frozen and Cured Meats.

The total stocks of frozen beef reported by 243 firms amounted to 105,174,204 pounds. The total stocks of cured beef reported by 268 firms amounted to 34,560,268 pounds. The total stocks of frozen pork reported by 234 firms amounted to 89,990,709 pounds. The total stocks of dry salt pork reported by 347 firms amounted to 211,820,000 pounds. The total stocks of sweet pickled pork reported by 430 firms amounted to 398,380,922 pounds. The total stocks of lard reported by 434 firms amounted to 85,567,568 pounds. The total stocks of lamb and mutton reported by 121 firms amounted to 3,995,883 pounds.

Poultry.

The total stocks of frozen poultry reported by 218 firms amounted to 54,186,977 pounds. The total stocks of broilers reported by 108 firms amounted to 3,697,010 pounds. The total stocks of roasters reported by 107 firms amounted to 5,066,335 pounds. The total stocks of turkeys reported by 117 firms amounted to 3,743,868 pounds.

Price Control Urged.

Increased production of food, the great need of the entente allies and the United States, waits on improvement in the nation's distributive system, according to J. Ogden Armour, author of an imposing article on the food problem in a recent issue of the Saturday Evening Post.

According to Mr. Armour, who is recognized as one of the leading authorities on food purveying, the farmers of this country will demonstrate their ability to grow food in abundance as soon as they are assured against glutted markets and ruinous prices at harvest time. He would solve the problems by increasing and improving the facilities for cold storage of such foods as can be kept in cold storages and for developing processes of drying or otherwise preserving other foods, thereby assuring an adequate supply of food at all seasons of the year. By putting the food business of the nation on the same sort of efficiency and economy basis that characterizes the big packing industries of the country, Mr. Armour believes the food problem in its entirety can be solved.

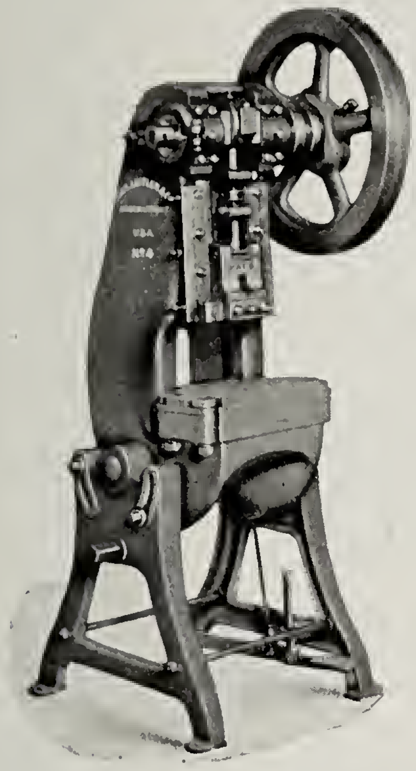
On the methods to be pursued by the farmers in their effort to increase production, Mr. Armour elaborates at length and presents the formula, "Diversify, Fertilize, Motorize, Specialize." He advocates the fixing of a minimum price to protect the farmer, and of a maximum price to protect the consumer.

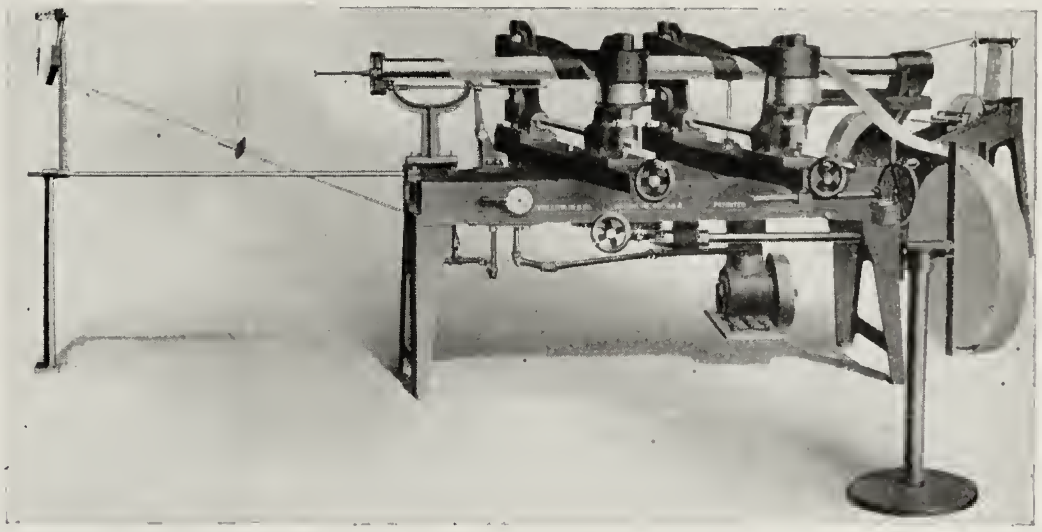
LEFFLER SPECIAL MACHINERY

Paper Can Machinery
Automatic Tin Can Machinery
Sanitary Can Machinery
Metal Package Machinery
Soldering Machinery

CATALOGUES ON REQUEST

Chas. Leffler & Co.
Clymer Street Kent Avenue
BROOKLYN, N. Y.





Ownership of Advertising.

Exclusive right to the use of selected names and phrases in advertising manufactured articles of any kind is not so easily obtainable as is generally supposed. Even though a manufacturer invent a name for his product by assembling in unique and original design a number of words, he may not be able to obtain official or legal protection that will secure for his exclusive use a trade-mark of that character so long as it is composed of words in common use. In substantiation of this assertion may be cited important lawsuits that lately have been brought to secure injunctions against alleged infringements on such assumed rights.

The most notable case in point, of recent date, was that of the Kellogg Toasted Corn Flake Company against the Quaker Oats Company in the United States Circuit Court of Appeals in Cincinnati, in which the Kellogg company claimed exclusive right to the use of the phrase "toasted corn flakes," which the Quaker company contested. The suit was brought in September, 1910, soon after the defendant company began the sale of Quaker Toasted Corn Flakes, having previously used the names "Maz-all" and "Yello" for the product. The Kellogg company immediately began legal proceedings to establish its claim to "toasted corn flakes" as its trade-mark. It was granted that the company had originated the phrase and for eight or more years was the sole user of it, but the court refused to recognize its exclusive right to the phrase and dismissed the case, as had previously been done by the District Court.

The point upon which the court based its ruling evidently was the common use of the word "toasted" and the universal right to use it. In this case may be perceived the necessity for care in the preparation of advertising copy and the importance of protecting a trade-mark against any usage which may detract from its individuality or impair its value.

Another case of equal interest was a suit brought in the House of Lords in England recently by the Horlick's Malted Milk Company against the proprietor of Hedley's Malted Milk. The Horlick company claimed the right to the exclusive use of the phrase "malted milk" and contended that for years it had been the only concern that made a preparation of malt and milk, and that the title was fanciful and not descriptive. The Court of Appeals had previously decided, after lengthy debate, that in the public view the words were plainly descriptive but of fanciful character. This decision was upheld fully by the House of Lords.

Commenting on the Horlick case, Thomas Russell, London correspondent of *Printer's Ink,* writes: "No doubt if anybody had sent Hedley an order for Horlick's Malted Milk and Hedley had without comment supplied Hedley's Malted Milk, an action for passing-off could have been sustained against him. But the mere marketing of a preparation, the title of which included the words 'malted milk,' was held, and, I think, justly, not to be an infringement of Horlick's rights, although Horlick is the only person who has advertised a preparation by the name of 'malted milk' in this country. I do not suppose the case will affect the sale of Horlick's Malted Milk, although it has made manifest the fact that anybody can use the name of he wants to."

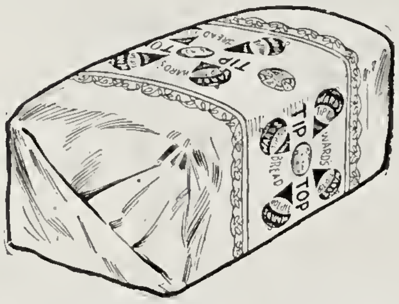
When a person's name is used in a trade-mark in connection with words intended to fasten upon the public mind the nature and purpose of a manufactured article, and a copyright or patent right has been secured for the whole, it becomes the exclusive property or right of the manufacturer. But when words that are merely descriptive, or the name of articles in common use are employed for the purpose of advertising a manufactured specialty there is little likelihood of redress through the courts, even though it can be shown, as in the cases cited, that a person has been the first to adopt and make constant use of any certain word or phrase. The phrase "Kellogg's Toasted Corn Flakes" has legal protection, but "toasted corn flakes" is anyone's property.

WARD'S TIP-TOP BREAD

is bread you can eat with a sense of safety because it is pure, clean and the standard of quality wherever sold.

It is pure, because only the highest grade bread making materials which money can buy are used in making it and the process under which it is made is the most advanced and scientific known to the baking industry.

WARD'S TIP-TOP BREAD is Clean because it is made in bakeries which are models of bread-making cleanliness. Every loaf is wrapped in waxed paper by MACHINE.



Hence, when you buy it you are guaranteed these three food manufacturing virtues—Quality, Purity and Cleanliness.

WARD BAKING COMPANY

THERE IS CLEANLINESS, HEALTH INSURANCE, ECONOMY AND CONVENIENCE IN

Our PET BRAND Evaporated Milk

The Standard of the World

Wins and Holds Trade on account of its Superior Quality

PREPARED BY

Helvetia Milk Condensing Co.
HIGHLAND, ILLINOIS
ORIGINATORS OF EVAPORATED MILK

Staff Correspondence

Washington, D. C.

An increase in salaries of employes of the Department of Agriculture went into effect on July 1st, which affected many inspectors and others connected with the administration of the food laws. Those receiving less than $1,200 per annum received a 10 per cent increase; those getting between $1,200 and $1,800, a 5 per cent increase. The increase does not apply to those whose duties require only a portion of their time or to those employed at irregular intervals.

Arkansas.

The arrival of many soldiers in Little Rock made it necessary to do something at once to increase the city's milk supply. At a conference between the health department inspectors and members of the United States public health service, it was decided to charter a refrigerator car to run between the outlying districts and Little Rock. It is believed that in this way the milk supply can be increased about 200 per cent.

California.

The city health department of San Francisco has issued a regulation forbidding the sale of tamales, enchiladas, etc., on the streets.

Indiana.

Carl Dreisch, secretary to the mayor of Evansville, is installing a new system of food inspection in that city. Of 132 establishments visited, 42 were given a clean bill of health. It was found in many cases that unsatisfactory conditions were due not to unwillingness to obey the law, but because property owners of old and dilapidated buildings refused to make necessary alterations for tenants. This matter has been taken up with the building department. Other places were found without sufficient help, so that proper cleaning was impossible. The food inspection department will continue its activities until conditions are remedied.

Governor Goodrich has asked the federal government to establish a branch of the bureau of markets in Indianapolis. He claims that in Louisville, Cincinnati and Chicago, where such branches exist, the prices for commodities are lower than in Indianapolis, and attributes it to the more correct information made available in regard to market conditions.

Iowa.

Commissioner W. B. Barney, head of the Iowa dairy and food commission, reports 294 successful prosecutions for the year 1916. 109 of these were for violations of the food law, 108 for violations of the sanitary law, 46 for violations of the dairy law, 25 for violations of the weights and measures law, and the remaining six for miscellaneous offenses. Among the most numerous causes for action were the sale of bad eggs, sale of ice cream deficient in butter fat, unsanitary ice cream containers, unsanitary slaughter houses, and unsanitary cream separators.

B. S. Iliff has resigned his position as deputy dairy and food commissioner of Iowa and is succeeded by Paul W. Crowley.

City Chemist Goebel of Cedar Rapids has been appointed a milk inspector by State Commissioner W. B. Barney so as to establish his right to take samples from milk wagons for analysis.

W. B. Barney, dairy and food commissioner, has sent out a letter regarding the cost of pasteurizing

Never Questioned

Royal Baking Powder is made from pure cream of tartar, which is derived from grapes. It perfectly leavens the food, making it appetizing, delicious and healthful, and its superiority in all the qualities that make the perfect baking powder is never questioned.

Absolutely Pure

No Alum—No Phosphate

Staff Correspondence

milk in which he makes the statement that it amounts, at the present time, to 0.4 cents per gallon, or one-tenth of a cent a quart.

J. F. Deems of Burlington has been appointed as the personal representative of Herbert C. Hoover to aid in the administration of the pending food law in Iowa.

The state food department is continuing its campaign to compel ice cream manufacturers to sell only a pure, sanitary product, conforming to the state standards for butter fat. Recently Inspector Flynn visited every factory in Davenport and secured samples.

Kansas.

Dr. H. L. Clark, health officer of Topeka, has issued an ultimatum to the ice cream manufacturers of the city. A recent investigation showed that conditions in some plants were absolutely bad, no effort had been made to exclude flies and dirt, and windows were wide open. The majority of the larger places were satisfactory.

Kentucky.

Dr. Vernon Robins of the Louisville Department of Health, who has been at Harvard University for the past eight months, taking a special health officers' course, has returned, and is again in charge of his work as city chemist.

Louisiana.

The quarterly report of the Louisiana state board of health contains a report of an investigation of the butter served in restaurants. The law requires that where renovated butter or oleomargarine is served, notice to that effect must be conspicuously displayed. Out of thirty restaurants inspected, nine were serving butter, eight were serving renovated butter and thirteen were serving margarine. Only seven had complied with the law regarding the posting of signs. The common method of handling butter, which consists in allowing the pieces to float in a bowl of ice water, from which they are removed with the fingers, is criticized as a possible way of communicating disease. It was shown in over 75 per cent of the samples that the bacterial content of the water surrounding the butter was enormously greater than that of the butter. The water originally being melted ice or clean city water, with a bacterial count of 15 per c. c. or less, and the temperature of the water being such as to prevent any multiplication of bacteria, it is evident that the added pollution was tremendous in many cases.

Massachusetts.

Almost complete readjustment of the food production and conservation control in Massachusetts has taken place during July, consequent upon the appointment by Governor McCall of a state food commissioner. Henry B. Endicott, executive manager of the Massachusetts Committee on Public Safety, has been named for this position, newly created by the legislature at its recent session. As he is also Mr. Hoover's designated agent for Massachusetts, the state is

IF INTERESTED IN
Fiber Cans and Mailing Cases
Write
The St. Louis Paper Can & Tube Co.
ST. LOUIS, MO.

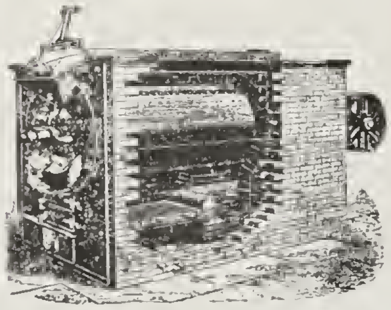
PATENTS
I render expert legal assistance in obtaining patents to protect inventions. The value of a patent depends largely upon skillful preparation and prosecution of the application. Information about obtaining patents sent on request.
R. E. BURNHAM
Patent and Trade Mark Lawyer, Real Estate Trust Bldg., Washington, D. C.

BON BON
The Original Alum Baking Powder
Never surpassed in wholesomeness, leavening or keeping qualities. Immense output. Low price.
J. C. Grant Chemical Co., E. St. Louis, Ill.

Illinois Vinegar Mfg. Company
19th and Rockwell Streets
CHICAGO, ILL.
MANUFACTURERS OF HIGH GRADE
DISTILLED VINEGAR

Canned Salmon
ALL GRADES ALL SIZES
Largest Distributors
in the World
KELLEY-CLARKE CO.
NEW YORK CITY SEATTLE, WASH.

GOTTFRIED BAY
successor to Chris. Abele
537 West 50th Street, New York



"Dufour" Bolting Cloth
Mustard Mills
French Burr Stone
Grinding Mills
Manufacturer of
ROASTING, GRINDING AND SPECIAL MACHINERY

Staff Correspondence

thus provided with a thoroughly centered food administration.

The act under which Mr. Endicott's appointment was made is sweeping in its provisions, being so inclusive in its terms as to authorize the commissioner, should he deem it necessary, to seize foods and feeds and sell them to the public. Mr. Endicott has named an advisory board of business men, manufacturers and financiers, but including three representatives of the agricultural interests—President Kenyon L. Butterfield of the Agricultural college, chairman of the state food production and conservation committee; Philip Allen, farmer, a member of the same committee; and (as secretary of the board) John D. Willard, executive secretary of the food committee.

The appointment has been awaited with some interest, not only because of the importance of the selection, but also because of the uncertainty existing concerning authority and policies until it should be known whether the appointment were to be made at all. Now that the governor has exercised the authority given him by the emergency act, the food commissioner naturally becomes the director of all activities concerned with the food supply.

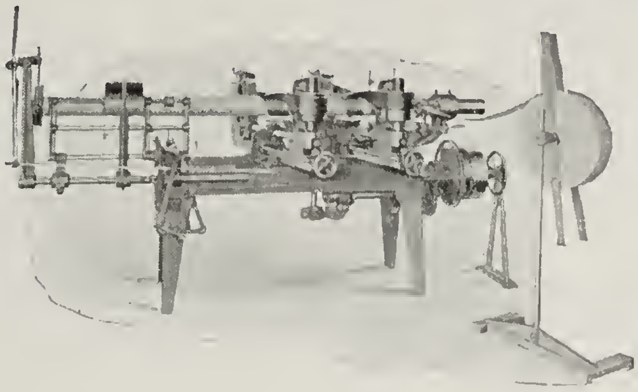
At the same time, the state committee on food production and conservation falls into a secondary position. Its organization will continue, but its work will be done mainly in connection with sub-committees of the food commissioner's board, on which the members of the food committee will be appointed. This arrangement was reached after the majority of the food production committee had offered their resignations, in order that the new commissioner might be unembarrassed by the continuance of the old committee in dealing with the problems of his position.

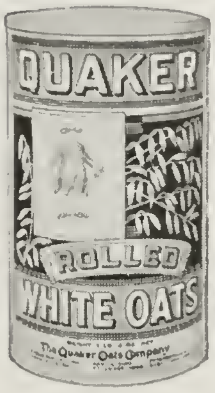
It was thought that the disappearance of the old committee might disturb or alarm the many local committees, town boards, county bureaus, and other agencies through which the food production and conservation activities have been promoted up to this time. In numerous instances these organizations have employed additional workers and otherwise developed more extensive operations and incurred money obligations with the financial backing of the state food committee, representing the committee on public safety. To avoid this disturbance, the food committee is retained as a formal part of the public safety organization.

Whether the advertising, canning, drying and similar plans will be so widely accepted by the different communities as to prevent serious wastage of the temporary harvest surplus of perishable foods is a matter of speculation. Undoubtedly some foods will go to waste now that will be needed later on. On the other hand, larger amounts are being conserved than ever before. An alarming aspect of the situation is found in the announcement of some market gardeners that they intend to let land lie idle this fall and also to curtail planting next year. It is likely, too, that home gardeners who lose produce by waste this season may be discouraged from planting again.

The food production movement is therefore in a critical period. The outcome will be fortunate or unfortunate largely in proportion as the various campaigns to promote canning, drying, evaporating and other means of conservation are continued and prove effective, and as the markets for perishable supplies are stimulated and the facilities for prompt and profit-

"LANGSTON" MACHINERY





FOR
ROUND PAPER CANS

SAMUEL M. LANGSTON COMPANY
CAMDEN, N. J., U. S. A.
CANADIAN FAIRBANKS-MORSE CO., Agents for Canada

Staff Correspondence

able distribution improved and increased during the harvest time surplus. It is to be presumed that the food commissioner will continue to these ends activities closely similar to those of the superseded food committee, but no definite declaration to this effect has been made public.

One of the tragedy-comedies of war gardening is being played in Boston. Boston people enthusiastically undertook to garden in plots prepared and cultivated more or less entirely at public expense. An understanding seems to have existed with the local committee that expenditures made by the city should be repaid; but that all the gardeners knew this is by no means certain.

Recently it occurred to someone that the city is out a lot of money, and a tempest in a teapot gathered. Charges of extravagance, if not worse, fell like bombs out of clouds of oratory in the council chamber. Calorated air and wholesomely oxygenated truth mingled in a very odorous atmosphere. Then the tempest declined.

It was decided that plot-holders owe the city $12.50 apiece for the one-eighth acre gardens, and that they shall either pay cash now or yield up two-fifths of their truck at harvest. Up to a few days ago, the city had already collected $25 in cash. Mayor Curley and the councilmen will have a lot of truck to provide storage for on behalf of the city. Fortunately, this being Boston, many of the plots are in beans.

Loose methods and loose politics seem to have mingled about equally in producing the incident. How it will react next year on the garden campaign, who knows? As the late satirist, C. Dickens, might have pointed out, the affair affords a beautiful example of the principle How Not To Do It.

Michigan.

Although the sale of properly inspected horse meat for human consumption in Detroit has been authorized by Health Officer James W. Inches, the first application for a permit to sell it was refused, owing to unsatisfactory condition of the premises. Only meat which has been inspected by department veterinarians can be sold.

Health Officer Slemons, of Grand Rapids, has asked the city commission to appoint a full time food and meat inspector for the city and also recommended a municipal abattoir. Restaurants, meat markets and soda fountains are especially mentioned as in need of inspection.

Missouri.

Dr. E. L. Barnhouse, dairy and food commissioner, is vigorously carrying out his pledge to see that Missouri and the city of St. Louis are supplied with pure and wholesome foods. Dozens of cars of food from the South have been condemned by the department and campaigns are being waged to prevent the sale of meat that has been exposed unprotected on counters and unnecessary exposure by wholesalers. Dairies and ice cream factories are being rigidly watched, and dealers in milk and vegetables of inferior quality are warned that either they must cease these practices or go out of business.

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Staff Correspondence

Federal officers have seized 288,000 eggs that were in storage at the Booth cold storage plant in St. Louis, alleging that they are bad. The eggs are being held awaiting a claim by the firm to which they were consigned.

Minnesota.

Frank L. Carey, vice-president of Hallet & Carey, grain brokers of Minneapolis, has been chosen by Herbert C. Hoover as director of foods for the Northwest.

Agents of the state dairy and food commission have seized several parcels of Burma beans. These beans, which resemble navy beans, but can be distinguished by a light yellow color and fine radiating lines, often contain enough prussic acid to be actually poisonous. The beans were shipped from the Pacific coast without attracting suspicion and were distributed from Michigan to North and South Dakota, Minnesota, Wisconsin, Iowa and Montana. Both federal and state authorities are working to locate all of the Burma beans and it is believed that the majority of the consignments have been discovered.

The dairy and food commission has taken over the enforcement of the oil law. No special inspector will be appointed, but the present deputies will carry on this work in connection with their present duties. A deputy to take charge of hotel inspection will be nominated by the traveling men of the state and the appointment confirmed by Governor Burnquist if the man comes up to requirements.

Montana.

H. M. Shea, formerly food and drug analyst for the state board of health, has been appointed director of foods and drugs, with on office at Helena. At present the state board of health is investigating the milk supply and other perishable foods and will make a report relative thereto in the near future.

New York.

The members of the joint legislative committee on the food control bill, which has been sitting in New York City, gathering data for a measure to be introduced at the next session of the legislature, is ready to quit in disgust. Crowds of people were anxious to be heard at every session, but none of them had any practical suggestions. At one stage of the proceedings 46 women sought to be heard. "I'll hear three women," said Senator Elon R. Brown, "and if we get one idea from any one of the three, we'll hear three more. What we want is specific suggestions as to remedial legislation: not denunciations of everything that is and has been."

According to a report of Dr. Lucius P. Brown, director of the New York City bureau of foods and drugs, covering the six months ending July 1st, more than 5,000 tons of food, valued at nearly $450,000, were condemned.

North Dakota.

Dr. E. F. Ladd, food commissioner of North Dakota and president of the North Dakota Agricultural College, issued a signed statement in the Fargo Forum last month in which he specifically states that the college has been made a football of politics, that Lewis F. Crawford, president of the board of regents, demanded his resignation at the May meeting of the board; that Frank White, of Valley City, admitted having made inquiries aiming at getting a new man to head the college; that Charles Brewer, secretary of

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Staff Correspondence

the board of regents, made personal application for the position of assistant food commissioner, and that a third party interceded for Mr. Brewer, asserting that his appointment would smooth over other matters.

The North Dakota food department has been conducting an investigation into the weight shortage in so-called pound prints of creamery butter and found that the product of 13 creameries in the state had shortages running from 3 per cent to 8.6 per cent, with more than half of them over 7 per cent short. The shortage seemed to be deliberately standardized by each concern, since a number of samples from each creamery were weighed and found to contain the same amount of butter. Another investigation of bread showed no uniformity in price per pound, and of ten loaves weighed, no two were sold at the same price per pound, the variation being from 11.8 cents per pound to 22.8 cents per pound.

Oklahoma.

Dairy conditions in Oklahoma have been found to be decidedly sub-standard and the city health officers, working with the state dairy and food department, are working to assure the people of the state a safe milk supply. Dr. C. C. Hise, assistant city health officer, of Enid, found not a single dairy in good condition. In Bartlesville, Dr. Woodring found visible filth in four samples out of thirteen. Oklahoma City has some modern dairies supplying it with milk, but 30 out of 40 distributers were said to supply milk that was a menace to the community.

Pennsylvania.

W. Blair Dunn, market master of Altoona, has issued a ruling affecting the curb market, which was designed to put the farmer and the consumer in closer touch, which will practically exclude meat and certain vegetables which must be protected from flies and dust by glass or fine netting. Since most of the farmers who are willing to trade on the curb market are small truckers living near the city and have no facilities other than their wagons to handle the foodstuffs, the sales will probably be limited to vegetables and fruits that are cooked, peeled or otherwise cleaned before being eaten.

James W. Krick, inspector of weights and measures at Reading, has been having some trouble with short measure potatoes. An old law made the bushel weight 56 pounds, whereas the present law adopts the usual standard of 60 pounds to the bushel. Some farmers are still selling according to the old statute.

The Pittsburgh food commission has adopted the Philadelphia plan of publishing a daily market report for the guidance of the housewife. In it the various fruits and vegetables are listed under three headings: Abundant, normal and scarce.

The press agent of the John Robinson Circus has hitched his efforts to the food conservation campaign and announces in the *Scranton Republican* that housewives are invited to visit the dining room and kitchen of the show and see how foods are conserved on a large scale. Meats are purchased in the whole carcass, all bones are saved for soup, meat scraps appear as hash, bread ends return as bread pudding, all potatoes are boiled in the jacket to save the waste that occurs when they are peeled raw, gravies and molasses are served daily, and rice, barley and hominy are

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GOOD-BYE FLY

According to Department of Agriculture Bulletin No. 118: Apply 0.62 pounds Borax to every 10 cubic feet of manure. Apply Borax particularly around edges; sprinkle with 2 or 3 gallons of water. This treatment should be repeated with each addition of fresh manure. Flies lay their eggs in fresh manure. Borax prevents their hatching.

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Staff Correspondence

substituted for beans. The menagerie eats the tops of the vegetables, and the trained pigs get the garbage.

Members of the Philadelphia Housewives League held a meeting last month and announced that they would not agree to the plan of Howard Heinz, director of the food department of the committee of public safety, whereby there would be no delivery by grocers without pay, unless there was also a reduction in food prices. They professed themselves unwilling to carry their own bundles if it simply meant an increased profit for the grocer. The meeting was called at the request of the state food department.

Rhode Island.

Frank A. Jackson, chairman of the Rhode Island food and drug commission, has been chosen president of the Rhode Island College of Pharmacy and Allied Sciences.

South Dakota.

Inspector C. J. Hatch, of Yankton, has resigned from the state food department to take a position as salesman for Swift & Co. W. C. Jones, of Aberdeen, and F. S. Lucas, of Bonesteel, have been added to the staff of inspectors.

The South Dakota food and drug department has been conducting an investigation into the amount of alcohol in "non-alcoholic" beverages and have discovered that nearly all of them contain some alcohol, the proportion generally being less than two-tenths of one per cent. The source of the alcohol in imitation beer and cider was infection by wild yeast, which almost invariably developed unless the product had been carefully bottled and sterilized. Soda waters and other soft drinks contain small amounts of alcohol derived from the concentrated extracts used in their manufacture. Of 162 samples tested, 19 contained no alcohol, of 65 near-beers 11 contained no alcohol, of 51 soda waters, 6 contained no alcohol and of 11 samples of grape juice and 23 ciders, one of each was alcohol-free.

Tennessee.

The state food and drug commission is working with the attorney-general to demolish an alleged ice trust in Nashville. It is claimed that four of the largest companies have conspired to eliminate competition

Utah.

George Shorten, city sanitary inspector of Ogden, has completed an investigation of the ice cream factories in that city and finds conditions uniformly good. Analyses made in Salt Lake City showed the cream to be of high grade.

Wisconsin.

State Commissioner Weigle has sent out a letter to retail merchants condemning as unlawful the practice of selling eggs "case count" and "current receipts." Dealers may comply with the law by candling all eggs bought and sold or by billing eggs with the understanding that eggs found unfit for food are to be rejected by the buyer.

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THE AMERICAN FOOD JOURNAL

—with which was combined on St. Patrick's Day, 1917—

The American Food Manufacturer

There is no higher art than that which tends toward the improvement of human food.—*Henry Ward Beecher.*

ROBERT GORDON GOULD, *Editor*

Vol. XII SEPTEMBER, 1917 No. 9

Hugh W. Green.

It was with great surprise that Mr. Green's many friends learned of his death in St. Joseph's Hospital, Keokuk, Iowa, on September 7th. The genial and able secretary of the American Manufacturers' Association of Products from Corn had not been in the best of health for some months, but practically none of his friends realized how serious was his condition. Mr. Green was the sort of man the food industry can ill afford to lose. Coming to the secretaryship of the association which speaks for the manufacturers of cornstarch and similar products, with the authority of a practical manufacturer of such products, Mr. Green had the breadth of vision necessary to the successful conduct of propaganda work calculated to gain in the public esteem a proper appreciation of the many products from corn. It will not be easy satisfactorily to fill his position.

New Members of the Family.

It is always a pleasure to greet new advertisers. The fortunes of this periodical, in common with most periodicals, is so intimately associated with tangible appreciation upon the part of manufacturers that we consider it not at all beneath our dignity to open this issue with an introductory line devoted to advertisers who are new to these columns.

Possibly the most significant new advertisement is that of the Dryventor—a dehydrating system that works; for be it said, with bated breath, not every drying contraption possesses that highly essential characteristic.

Among the packers of food who are intelligently endeavoring to augment the present supply is the Dyer Packing Company, whose product composed of soja beans and navy beans was in May reviewed in these columns. The soja bean is an excellent food but one which taxes the ingenuity of the housewife because of its hard outer layer. It is an ideal product for commercial packing.

Another name new to this JOURNAL is that of the National Association of White Corn Millers whose product—corn flour—blends excellently with wheat flour. Full justice will not be done this product until the hampering mixed flour law is abstracted from the federal statute book and returned to the hard wheat millers whence it came.

Other advertisers not regularly seen in this pages—McCormick & Company, Sprague, Warner & Company and the National Confectioners' Association—are again this year observing their most excellent custom of appearing in the special convention issue.

Those of you who left for your summer vacations early in the season will be glad to meet Messrs. Quaker Oats Company, Diamond State Fibre Company and Kalamazoo Vegetable Parchment Company, all of whom have joined the family during the summer.

Candy in War Time.

In view of the high energizing food value of candy one would naturally suppose that it would be in favor among the soldiers. That such is the case is vouched for by Mr. Walter C. Hughes, Secretary-Treasurer of the National Confectioners' Association. He tells us that according to the best reports obtainable the consumption of candy in the front line trenches in France and Flanders has been five times what the military authorities anticipated it would be. Inasmuch as this country has been unable to export its normal quantity of confectionery this demand for sweets from the Tommies and the Poilus in the trenches has been met almost entirely by European manufacturers. From all reports life in the trenches is not what might be termed unalloyed bliss and if our troops can find solace in sweetmeats it is certainly incumbent upon us to see to it that their demands are honored. The food value of candy for the adult is something which is not always borne in mind by those who discuss that edible or legislate concerning it.

James Sorenson.

James Sorenson, who was on August 1st of this year appointed by Governor Burnquist to the post of dairy and food commissioner of Minnesota, was born in Denmark on February 22, 1871, coming to Minnesota in 1890. He has had charge of several creameries in the Northwest states as buttermaker and manager. He was appointed state creamery inspector in 1907 and manager of the State Experimental Creamery at Albert Lea in 1911, which position he will continue to hold while commissioner. Mr. Sorenson was at one time president of the Minnesota Butter and Cheesemakers' Association and is at present a member of the executive committee of the National Creamery Buttermakers' Association. For the past ten years he has been an instructor and for the last eight years in charge of instruction work at the Minnesota Dairy School at the University Farm. Mr. Sorenson has a wide reputation as a butter judge, having scored the exhibits at national and international scoring contests. He is an authority on matters pertaining to all branches of dairying and has contributed many articles to the dairy and farm press.

Doing Our Bit.

The subjoined correspondence is self-explanatory. Our sole excuse for giving publicity to this bit of routine correspondence is that it may, perhaps, serve to emphasize the premise upon which this JOURNAL is founded—as typified by scientific truth, blindfolded and pictured against a background of instruments of precision; that intelligent action must at all times be predicated upon exact information. Until the AMERICAN FOOD JOURNAL undertook this work there was no practicable method of ascertaining, month by month, what it was costing the average American to live.

FOOD ADMINISTRATION.
Washington, August 31, 1917.

Mr. Robert Gordon Gould, Editor,
American Food Journal, Chicago, Illinois.

Dear Sir:

The Food Administration, in connection with its statistical work, of which I am in charge, finds the table of retail prices published in each issue of "The American Food Journal" of great interest and value. On this account I am venturing to write you to suggest certain additions to the list of commodities of which you give prices in that table. I note that you are adding a few commodities each month to your list, and this makes me the more inclined to inquire whether it would not be possible to add to the list the following commodities: Raisins, bacon, cabbage, beets, peanuts, and peanut butter. I think that the addition of these commodities would very considerably enhance the value of the table.

May I express our appreciation of the loyal support you are giving the Food Administration through the columns of your journal. Faithfully yours,

U. S. FOOD ADMINISTRATION,
17-H By Raymond Pearl.

THE AMERICAN FOOD JOURNAL.
Chicago, September 6, 1917.

U. S. Food Administration,
Washington, D. C.

Gentlemen:

In response to your letter of the 31st ult., bearing the symbols 17-H, permit me to say that it is a source of satisfaction to know that the retail price chart is of interest to you.

As to your suggestions for additions to the list I shall, of course, be glad to act upon them. Raisins I had already thought of adding, and now that you have seconded the motion they will appear in the October page. Bacon was on the first list we sent out, but because of lack of uniformity in the basis upon which the price was placed, was omitted from the final figures. Cabbage and beets were also tried but, thanks to the idiotic method of selling fresh vegetables by all sorts of units (gravimetric, volumetric and numerical), were discarded. Peanuts and peanut butter are brand-new suggestions and I thank you for them. I shall personally be interested in ascertaining how many stores will quote on peanuts.

If there is anything further I can do to help you in your work, let me know.

Very truly yours,
R. G. GOULD,
Editor and Publisher.

Corn Products.

It is quite fitting that at the present time, when the subject of conservation is actively before us, we should discuss the manufacture of the many products from corn. Probably no American cereal has been less fully appreciated than has maize—the American Indian's greatest contribution to the civilized world. Of the three billion and more bushels of Indian corn harvested in this country less than twenty per cent finds its way to the market, the balance being used as feed rather than food. Indeed, of the fifth part that is sold as "cash corn" by no means all is used as food, much of the corn in commerce being consumed as cattle feed, as fermented beverages and in the industries. As Dr. A. P. Bryant states in his article in this issue, the two major products of corn are starch or the sugar made from starch. The sugars of corn in liquid form are commonly called glucose, or corn syrup. In the dry form the term used is dextrose or cerelose.

In considering the many products made from corn one should not forget that by their very multiplicity do they augment the food supply. It is now possible to have at one and the same meal corn syrup as a spread for one's waffles; bread made from flour part wheat and part corn, the leavening of which has been accelerated by corn sugar; and with the salad course, corn oil as a part of the salad dressing.

On the Shifting Sands of Time.

How easy it is for some man to get up in a dairy convention and make very sweeping statements based upon but very few facts! We are reminded of this by what J. L. Carter of Chatham, Pennsylvania, recently said in a farm institute about pasteurized milk and other things. For instance, he speaks of the "life principle" in milk. We would like to know what he means. There can be no life principle beyond a wholesome food principle.

Are the foregoing words of wisdom an editorial utterance of this JOURNAL? They are *not*. Far from it; for we well know that milk is of value for dietetic reasons other than its being a wholesome food. No, the opening paragraph is not from the FOOD JOURNAL; it is quoted verbatim from *Hoard's Dairyman,* Vol. 29, page 98, being the issue of March 18, 1898.

Does this cavalier treatment of life principles in milk reflect the present editorial attitude of *Hoard's Dairyman?* It does **not**. That worthy contemporary at present has much to say concerning the life principles of milk, and with many of its statements we are in hearty accord. When, however, *Hoard's Dairyman,* or any other publication which is seeking to kill the sale of butter substitutes in order that butter may not be compelled to compete therewith, sweepingly claims for commercial butter—a product which is all too often so artfully manufactured as to raise serious doubts as to its possessing these highly important "life principles"—all of the many virtues of sweet, fresh milk, we feel obliged in the interests of intellectual honesty to call attention to the opportunistic nature of their editorial utterances as revealed by the past.

Federal Activity.

One of Mr. Herbert C. Hoover's first acts as Food Administrator was the selection of a committee, headed by Harry A. Garfield, the duty of which should be to fix a fair price for wheat harvested during 1917. After some weeks of deliberation that committee determined upon a figure of $2.20 a bushel. All wheat is to be handled through the agency of a grain corporation capitalized at $50,000,000, and this body is at present actively engaged in allotting wheat to mills and others who need it.

The millers have been asked to limit themselves to 25 cents per barrel profit on flour and 50 cents a ton on feed. In ante bellum days a profit of 10 cents a barrel on flour was considered normal, although the profit on flour should not be considered apart from the profit on feed, and there is, of course, every incentive to keep the price of feedstuffs, because of the urgent demands of the dairy industry, at the lowest possible figure.

The Stock Exchange in Chicago has ceased to deal in future sales of wheat, all transactions in that commodity being handled by federal appointees.

That this country can without serious disorganization of industry witness such far-reaching changes in its manner of transacting business speaks well for the spirit of solidarity animating the commercial interests most concerned.

Starch in Baking Powder.

One would naturally expect in this day of enlightenment to hear no more of the nineteenth century objection to the presence of cornstarch in baking powder. Dietitians have long since acquiesced in the claim that starch is a desirable component of baking powder, but apparently there are among the baking powder manufacturers some who still raise their voices in indignation against this well-nigh universal practice.

Recently the mails brought us from California a number of pieces of printed matter distributed by A. Shilling & Company, baking powder manufacturers of San Francisco. For the benefit of those of our readers who are not "native sons" we will state that Shilling's baking powder is a cream of tartar powder. It contains no cornstarch and sells for 50 cents a pound. As its sale presumably is confined to the Pacific coast it is perhaps possible for the manufacturer to keep fairly fresh stock on the dealers' shelves, freshness of stock being a *sine qua non* for the satisfactory use of a baking powder without starch. Despite the circumscribed area in which this baking powder sells one wonders how well a starchless baking powder withstands the moist air of northern California, Oregon and Washington, for moisture is the immediate cause of deterioration in baking powder. No matter what may be the activating principle—*cream of tartar, phosphate or alum*—all types of baking powder are quiescent until they absorb sufficient moisture to cause activity between the base and the acid of which they are composed.

If there were no possibility of absorption of moisture there would be no necessity for the use of cornstarch. It is to keep separated the base *(bicarbonate of soda)* and the acid, whatever it may be, until chemical activity is desired that cornstarch is used. If baking powder were compounded in the home for immediate use there would likewise be no necessity for the use of cornstarch; but baking powder is not compounded in the home. It is usually manufactured by someone who specializes in that work, and as it is often shipped long distances under all sorts of climatic conditions and held by the retail dealers for considerable periods of time awaiting sale, it has become customary, and very wisely so, to add sufficient cornstarch to keep the mixture quiet for a reasonable length of time under ordinary conditions of trade.

All baking powders deteriorate more or less in the course of time. Many manufacturers make a practice of allowing credit for returned or unsold stock of their make which has reached or passed the "dead line" of gas production. If deterioration due to premature chemical activity is taken as a matter of course in the case of baking powders which are protected against such activity by the addition of cornstarch, it is easy to see how readily a starchless baking powder would deteriorate under ordinary trade conditions.

All of this is well known among those who are interested in such matters and for that reason it is not easy to follow our friends on the Pacific coast when, in order to sell more of their product, they at this late date publish to the world—and especially to the feminine world—the old, discredited arguments against the use of starch, to wit:

"starch has no leavening action"

> Of course it hasn't, neither has infusorial earth any explosive action, and yet the man who would sell dynamite free from dilution with an inert substance would soon find himself in trouble.

"it (*starch*) decreases the proportion of active ingredients—and thereby the volume of gas the baking powder will make"

> The test of a baking powder is its performance—not its empirical formula. No pragmatist would be guilty of any such *a priori* claim as this—especially when dealing with baking powder.

"starch is a cheapening filler"

> A "filler," in the strict sense of the word, starch is certainly *not:* it is a diluent—and a necessary one. To endeavor to besmirch a food product in these days of thrift by dubbing it "cheap" is a *fine* example of misconceived commercial strategy. Cheap foods are what we need—to help win the war.

"use a quarter less (*of this starchless powder*) than of any other baking powder."

> Disinterested experimentation would seem to indicate that all baking powders, when fresh, generate about the same amount of carbon dioxide, weight for weight—so closely do the various manufacturers scrutinize the offerings of their competitors. Freshness is the controlling factor here.

"so much starch is used that efficiency is cut to the minimum."

> Chemically speaking, the greater the proportion of starch to the active components (base and acid) the longer time will elapse before the powder "goes dead"—falls below 10 per cent available CO_2.

There are a few more arguments, but they are all of the same sort, being based upon a desire to sell a certain type of product rather than to disseminate actual information. Many manufacturers make a practice of going direct to the housewife with their domestic science "educational copy." Most of such matter that reaches this office is excellent. Occasionally, however, we are forced to admit that, like the lawyer in the famous Smith *vs.* Brown case, "the gentleman relies upon his imagination for his facts and upon his hopes and aspirations for his argument."

Wrapped Hams and Bacon Not Packaged Goods.

The question of whether or not hams and bacon, wrapped in the time-honored manner, were properly to be considered packaged goods was taken up with the Department of Agriculture by the packers in 1914. The Department held that hams and bacon were not in packaged form and that according to the meaning of the Food and Drugs Act they were not required to be marked with the net weight. In January, 1916, the National Wholesale Grocers' Association filed a petition with the Secretary of Agriculture asking that this ruling be revoked and that hams and bacon be declared to be in packaged form and required to be marked with the net weight. In February, 1917, a hearing lasting several days was held by the officials of the Bureau of Chemistry together with the Solicitor of the Department of Agriculture. The Solicitor held, it is understood, that as a matter of law the original ruling of the department was correct. The matter was subsequently referred by the Department of Agriculture to the Attorney General of the United States for final decision and that decision, which has just been handed down, is printed immediately below. Mr. George P. McCabe of Chicago represented the packers throughout the entire proceedings.

DEPARTMENT OF JUSTICE.

Washington, August 28, 1917.

The Honorable, the Secretary of Agriculture.

Sir—I have the honor to comply with the request contained in your letter of January 15, 1917, for my opinion on the question whether single hams and single sides of bacon wrapped or covered with paper, cloth, or gelatine are "in package form" within the meaning of the Act of March 3, 1913 (37 Stat. 732), commonly known as the Net Weight Amendment to the Food and Drugs Act (34 Stat. 768). The rendition of the opinion was delayed at the request of the Solicitor of the Department of Agriculture pending informal conferences between him and this department. The Solicitor has now requested by letter dated the 21st instant that the opinion be rendered as soon as convenient.

The Net Weight Amendment provides in substance that an article of food shall be deemed to be misbranded, under the Food and Drugs Act:

> If in package form, the quantity of the contents be not plainly and conspicuously marked on the outside of the package in terms of weight, measure, or numerical count: *Provided, however,* That reasonable variations shall be permitted, and tolerance and also exemptions as to small packages shall be established by rules and regulations made in accordance with the provisions of Section three of this Act.

It appears from your letter that in Service and Regulatory Announcements, Chemistry No. 6, issued July 17, 1914, the Department of Agriculture, which is charged with the administrative enforcement of the Food and Drugs Act, ruled that single hams and single sides of bacon wrapped or covered with paper, cloth, or gelatine are not "in package form" within the meaning of the Net Weight Amendment. This ruling has been in effect continuously.

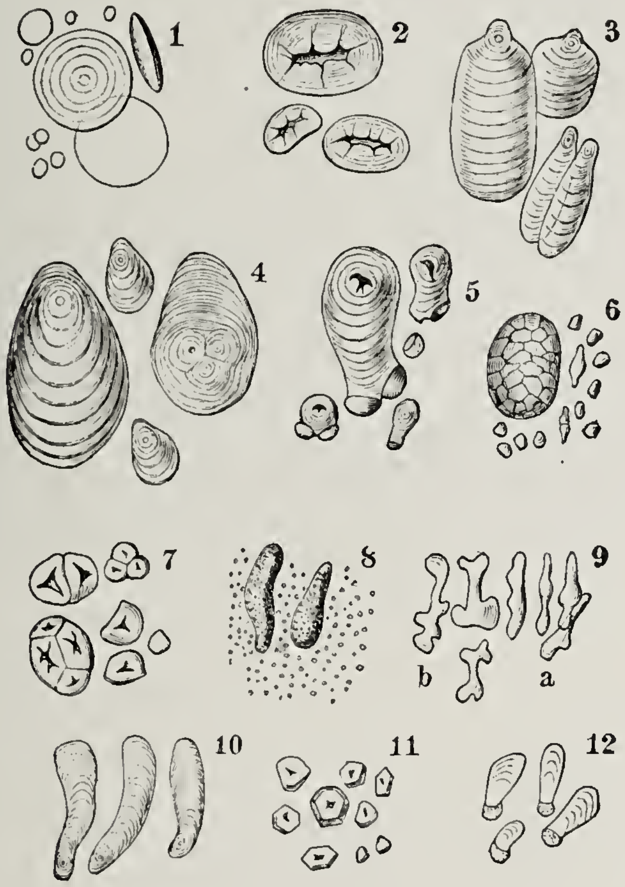
While as is usually the case where elastic words have to be construed, there is more than one side to the question, I am certainly not prepared to say that the construction adopted by the Department of Agriculture is clearly erroneous; and where the department of government primarily charged with the enforcement of a statutory provision has adopted a construction and that construction has been in practical operation for several years, I do not think that the Attorney General should disturb it unless of opinion that it *is* clearly erroneous. *United States* vs. *Philbrick*, 120 U. S. 52, 59; *United States* vs. *Moore*, 95 U. S. 760, 763; *United States* vs. *Hammers*, 221 U. S. 220, 228-229; *Illinois Surety Co.* vs. *United States*, 215 Fed. 334, 338 (C. C. A. 4th Cir.); 27 Ops. A. G. 446; 26 Ops. A. G. 390; 20 Ops. A. G. 358; 20 Ops. A. G. 719.

Respectfully,
T. W. GREGORY,
Attorney General.

Manufacture of Corn Starch, Corn Syrup and Corn Sugar

By Dr. A. P. Bryant,
Directing Chemist of the Clinton Sugar Refining Company of Clinton, Iowa.

STARCH, from a food standpoint at least, is the most important of all the carbohydrates because of its widespread occurrence. ✓It is present at some time in all green plants, and especially so in the seeds, bulbs, tubers and root stock—in fact, wherever the plant stores up reserve food supply for itself. It is only produced, however, by chlorophyll-possessing plants. The fungi, molds, and similar plants do not produce starch, but, rather, require it for food just as does man and beast. ✓The great commercial sources of starch are corn (maize), potatoes, wheat, rice, cassava, and sago, although there are many other sources of less importance.



FORMS OF STARCH GRAINS.
1, wheat; 2 pea; 3, curcuma (tumeric); 4, potato; 5, sago; 6, oats; 7, Colchicum (a form of crocus); 8, cockle; 9a, Euphorbia resinifera; 9b, Euphorbia Helioscopia; 10, banana; 11, maize (Indian corn); 12, Iris Germanica (with adhering leucoplasts). Magnified 300 times. (VOLG.)

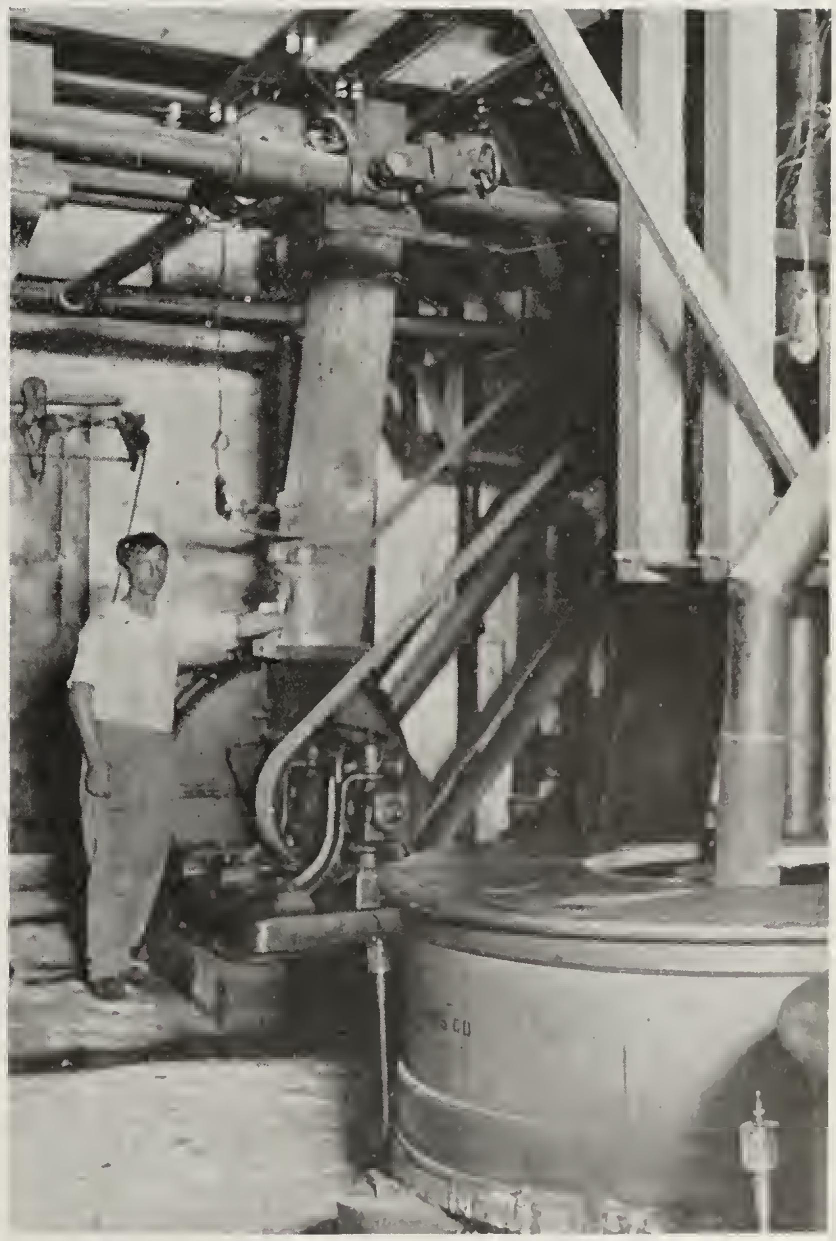
By courtesy of John Wiley & Sons, Inc., Publishers of Winton's "Microscopy of Vegetable Foods."

While the chemical composition of all the starches is the same, their appearance under the microscope differs widely, so that it is comparatively easy to tell from what source a given sample of starch was derived. The rounded angles and star-like markings (hilum) in the center characterize corn starch; wheat starch shows large discs and small accompanying grains; potato starch with its large, oblong shape and shell-like markings, and cassava with its "kettle drum" forms are both easily recognized; rice starch is smaller than the others, and so on. These microscopic characteristics of different starches are very useful in detecting substitution and adulteration.

Manufacture of Starch from Corn.

By far the larger amount of starch used as food and in the industries comes from corn, and from 60,000,000 to 70,000,000 bushels are used yearly in the United States for the manufacture of corn starch and products made therefrom. The process of manufacture involves the separation of the component parts of corn—the hull, germ, gluten and starch—after soaking in warm water until the grain has softened. The soaked kernels are torn apart and the germ, or chit, which is thus liberated is floated off on a mixture of starch and water, thus separating it from the rest of the kernel. This germ, which contains about one-half of its weight of oil, is ground and cooked and the oil squeezed out in powerful presses, leaving a residual corn oil cake which is a very valuable cattle food. The oil finds a large variety of uses, the most important of which is as an edible oil.

After the germ has been removed, the rest of the corn is ground in water and run over sieves covered with very fine silk bolting cloth which retains the bran



GRINDING THE CORN.
The mills in the background by the man are for tearing the germ out of the corn. The mill in the foreground—it is one of several—grinds the corn after the germ has been removed. Both kinds of mills work on the wet corn.

and allows the starch and gluten to pass through. The starch is then separated from the gluten on long tables or troughs where the starch settles, while the gluten being the lighter, stays in suspension and flows off at the end. The gluten and the bran are then mixed together, filter pressed to get rid of most of the water and then dried and ground. This gives gluten feed which contains nearly all the protein or muscle-making part of the corn and is a cattle food much prized by dairymen and stock feeders.

Corn gluten, unlike wheat gluten, is not sticky and tenacious when mixed with water. For this reason corn bread crumbles readily while the adhesive properties of wheat gluten allow retention of the gases in baking, thus causing the bread to rise and become light. The nutritive value of corn gluten and wheat gluten are, however, the same.

The removal of the germ, bran and gluten of the corn leaves the starch, which constitutes about two-thirds of the weight of the dry matter of the corn kernel. This starch is then either dried and prepared for food or technical uses, or is mixed with water and subjected to partial or complete hydrolysis in the manufacture of corn syrup or corn sugar.

Manufacture of Commercial Corn Starch.

The starch as it is obtained after the removal of the other parts of the corn contains about 46 per cent of water. It is usually mixed with water and either settled out again on the starch tables or filter pressed. Sometimes it is soaked in alkaline water to remove traces of remaining corn gluten. This washed, purified starch is then ready for the drying process. The method employed in drying the starch has a very great influence on the appearance of the finished material.

If the raw starch is placed on trays in a drying kiln through which a blast of hot air is continually forced it tends to dry to a fine granular condition and is called Pearl starch. If, on the other hand, the starch is cut in large cubes, wrapped in paper and dried very slowly, the finished product breaks into large lumps. This same result is more easily and generally obtained, however, by heating and pressing the starch before it has thoroughly dried and then completing the drying process. Starch is also dried in vacuum dryers. Where the starch is to be used for food the quick dried Pearl starch is powdered and then packed in barrels or small cartons.

Thin Boiling Starch.

Ordinarily starch forms a thick paste when boiled in the proportion of one part of starch to 16 parts water, but if starch is mixed with slightly acidulated water and gently heated for some time, not enough, however, to burst the granules and form a paste, the starch undergoes a change which makes it boil to a thinner paste. "Thin boiling starch" is extensively used by laundries because it penetrates the goods better and gives body without the extreme stiffness given by the corresponding amount of ordinary starch. A thin boiling starch is also used by the confectioner in the manufacture of gum drops.

Dextrin.

If powdered starch is roasted in shallow pans between highly heated steam coils it turns yellowish and is gradually changed to dextrin, in which form it is soluble in water and ceases to give a blue color when tested with iodine solution. If a trace of acid is sprayed into powdered starch before roasting, the process is hastened and the resulting dextrin dissolves to a thinner solution with a given amount of water

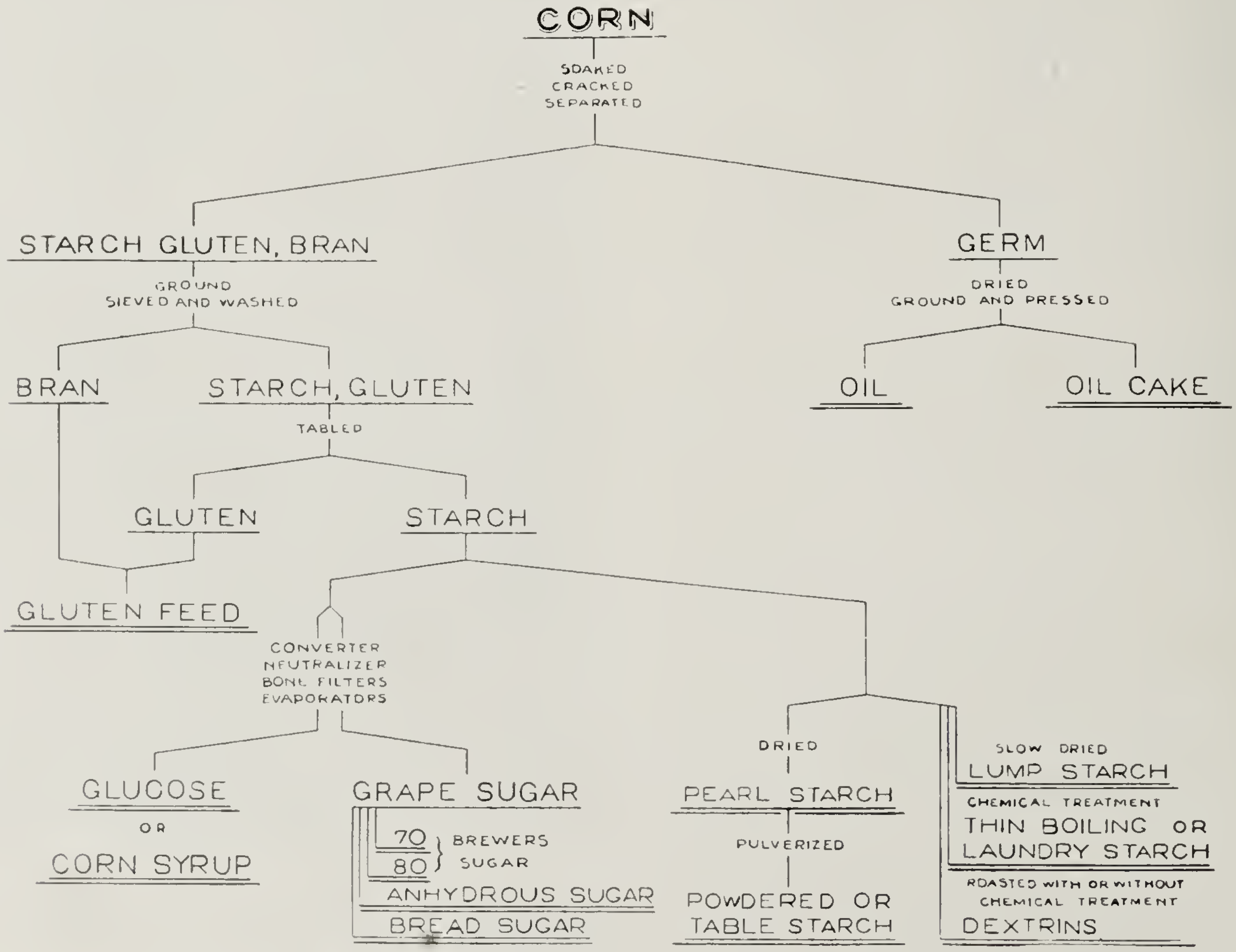
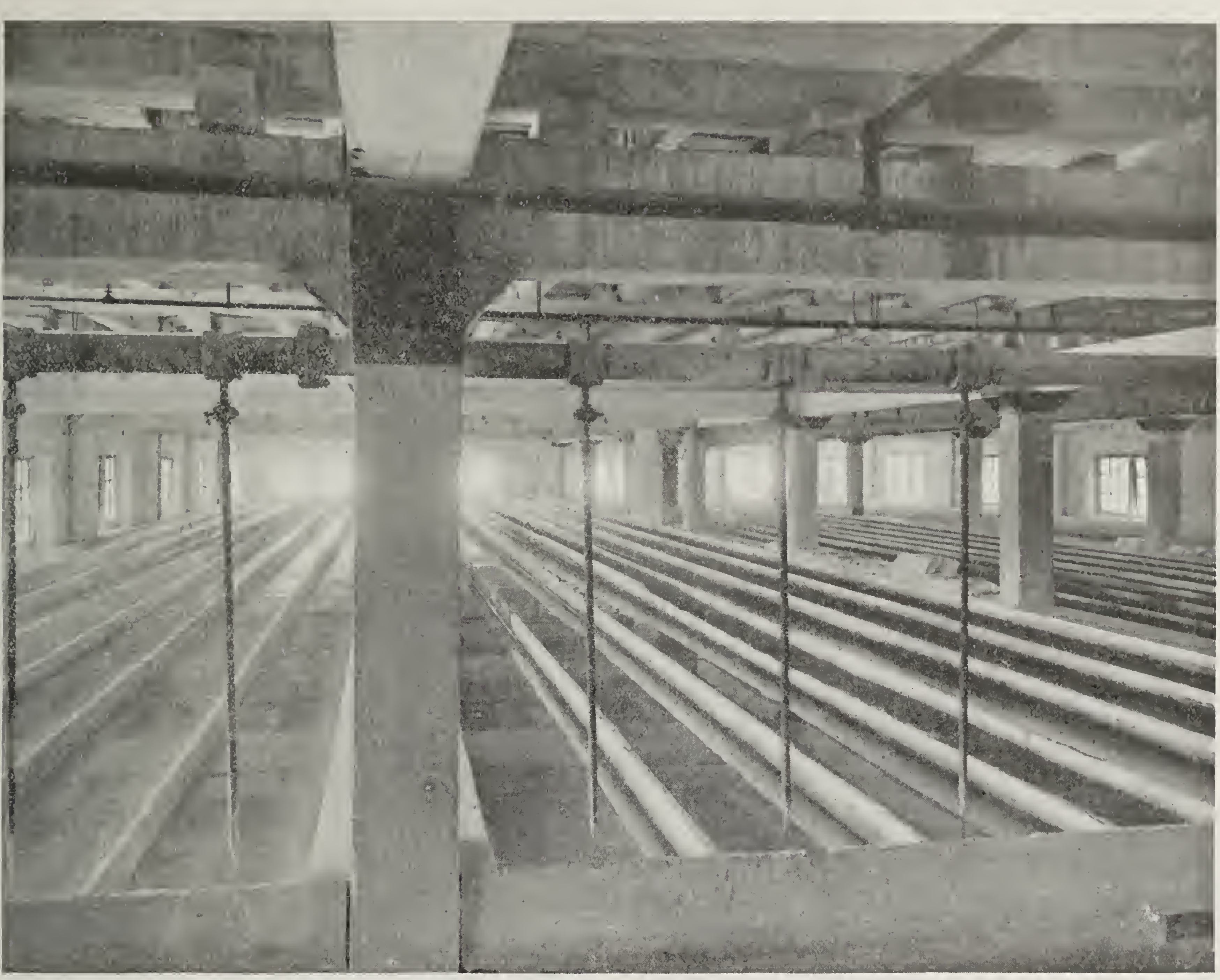


Diagram Showing Steps in the Manufacture of Various Products From Corn.



STARCH TABLES.
The starch and gluten of the corn after removal of the germ and hull are run on in a small stream at the head of each table. The starch settles and the gluten flows off at the farther end. Some lumps of wet starch are seen by the posts at the right center.

than does starch roasted without a trace of acid. Dextrin, because of its solubility in water and its adhesive nature, finds a large variety of uses, among which are in sizing cloth, in calico printing, as an adhesive, in the preparation of pastes and on the back of stamps and stickers.

Manufacture of Corn Syrup and Corn Sugar.

If to a starch paste is added saliva or pancreatic juice, it soon becomes quite fluid and finally ceases to give a blue color when tested with iodine. If the fluid is now tested for reducing sugars, they will be found present. The starch has been chemically changed by the action of the enzymes in the saliva and pancreatic juice. This change we call hydrolysis because it means the chemical union of starch and water, thus forming, in this case, a sugar—maltose. In other words, digestion of starch means its hydrolysis, with the formation first of maltose and finally dextrose, in which form it reaches the blood stream.

✓ If malt extract is allowed to act on moderately warm starch paste a similar change takes place, the final product being malt sugar (maltose) and dextrin. If the starch be boiled with water, to which a trace of acid has been added, a similar transformation occurs and the starch is changed, hydrolyzed, with the formation of sugars (maltose and dextrose) and dextrin, the relative amounts depending upon the temperature, time of cooking and strength of acid used.

In each of the above cases the change, hydrolysis, has been brought about by the presence of a very small amount of some agent, enzyme or acid, which in itself does not enter into the final product, but the presence of which is necessary to induce the change.

Intermediate between starch and sugars there will be found in either of the cases just described a considerable quantity of dextrins, the proportion constantly growing less as the chemical changes advance, until practically the whole of the starch is changed to maltose, maltose and dextrose, and finally dextrose. Expressed in the form of a chemical equation these changes are:

$$\underset{\text{starch}}{(C_{12}H_{20}O_{10})x} + \underset{\text{water}}{(H_2O)x} = \underset{\text{maltose}}{(C_{12}H_{22}O_{11})x};$$

$$\text{or } \underset{\text{starch}}{(C_{12}H_{20}O_{10})x} + \underset{\text{water}}{(H_2O)2x} = \underset{\text{dextrose}}{(C_6H_{12}O_6)2x}$$

In the form of percentage 100 parts of starch takes up 5.6 parts of water to form maltose and 11.1 parts to form dextrose.

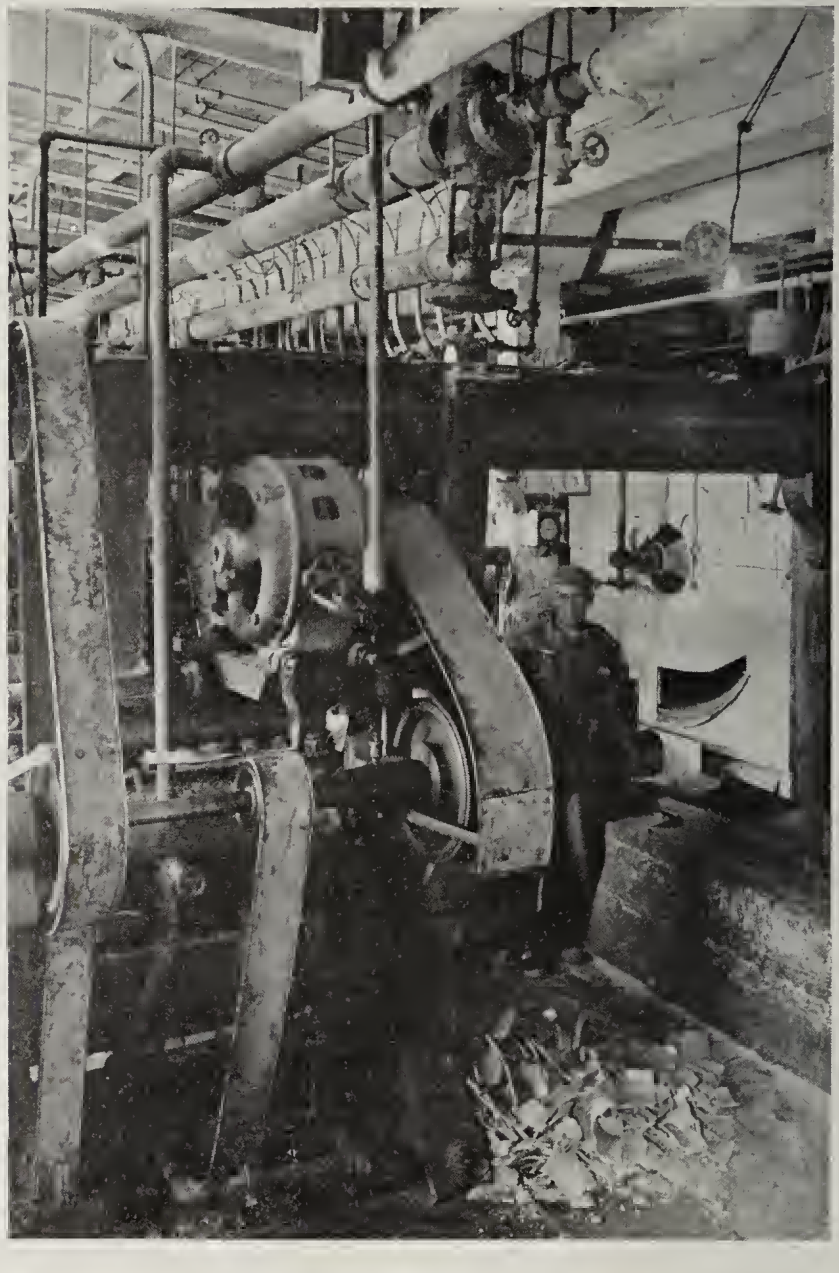
The starch molecule is very large and complex and when acted upon by enzymes or dilute acid it splits up, first, into smaller molecules still possessing most of the characteristics of starch, then into a series of dextrins and finally these simpler dextrins are acted upon by the hydrolytic agent, which drives into chemical composition with the starch one or two molecules of water, forming maltose or dextrose, respectively.

The Commercial Product of Starch Hydrolysis—Corn Syrup and Corn Sugar.

After the corn starch has been separated from the other constituents of the corn, it is mixed with water acidified with a small amount of hydrochloric acid, *the proportion of acid being considerably less than that found in the digestive juices of the stomach.* The acidified starch and water is then drawn into a "converter," a large copper vessel holding about four tons of starch, where it is cooked with live steam until tests show that hydrolysis has been carried to the desired degree. In the manufacture of corn syrup this is at a point where from 40 to 50 per cent of starch has been actually hydrolyzed into maltose and dextrose, the remainder being split up into dextrins. In the manufacture of corn sugar, it is the point where hydrolysis has been carried practically to completion with the formation of dextrose as the final product.

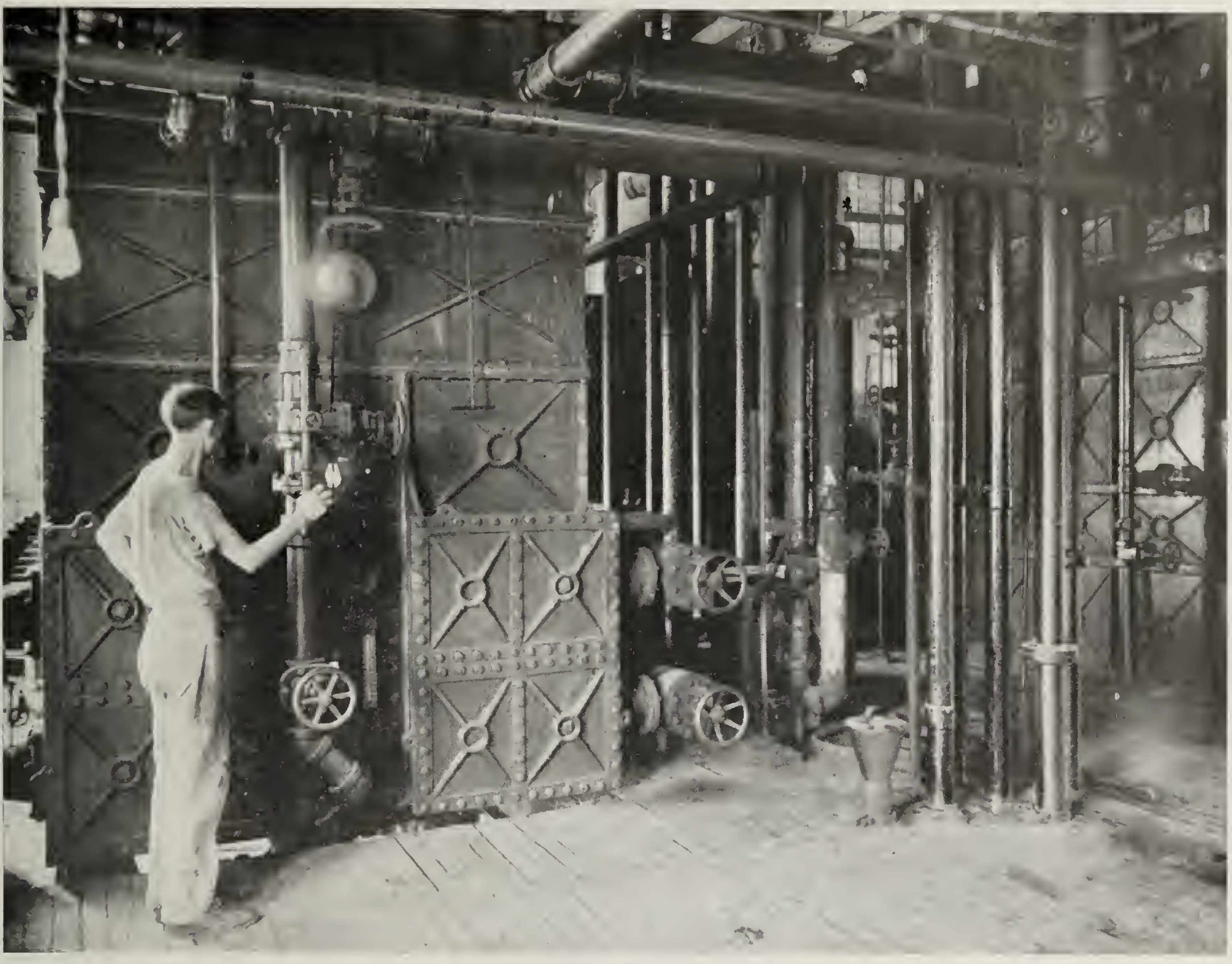
The change once having been brought to the desired test, the charge is released into a neutralizer, where sufficient sodium carbonate is added to neutralize exactly the hydrochloric acid, with the formation of common salt. Once exact neutralization has been reached the syrup "breaks" and the trace of corn gluten still present in the starch going into the converter separates and can be removed by filtering. This neutralization is, in a way, fool-proof, because the presence of even the faintest amount of free acid or free alkali prevents the break. The syrup is then repeatedly purified by passing over charred bone or bone black in much the same way that cane sugar is finally refined.

AT THE CONVERTER.
Syrup presses are to be seen in the background. The converter extends through to the second floor below.



AN OIL "EXPELLER."
This machine squeezes the oil from the germ, producing the dry "cake" shown on the floor.

Purification is carried out in large vertical cylinders from 6 to 10 feet in diameter and some 20 feet high which are filled with bone black, i. e., bone burned in such a way that only the bone phosphate of lime and the carbon are left. The syrup is slowly run through these bone black filters and the impurities (traces of gluten and other constituents of the corn) which still remain in the starch are removed, after which the purified liquor is ready for concentration *in vacuo* to the desired specific gravity. The vacuum pans in which the syrup is concentrated are built on the same principle as those used in concentration of sugar liquors and the boiling is carried on in the same way except that in the manufacture of sugar the syrup is dropped at a point where it will give the maximum yield of sugar crystals, while in the manufacture of corn syrup the whole mass is evaporated to a syrup of 42 to 45 degrees Beaumé, as desired; in fact, it is the non-crystallizable property of corn syrup which is one of its valuable characteristics.



ON THE "PAN" FLOOR.
The refined syrup from the filters is boiled down in large vacuum pans, the end of one of which is seen.

In the manufacture of corn sugar, on the other hand, crystallization is desired and the manipulation is somewhat different. Two general classes of corn sugar are found on the market—cake and granular. If a syrup in which the hydrolysis has been carried to a point at which about 86 to 90 per cent of the starch appears as sugar (dextrose), in other words, where it has a purity of 86 to 90, and the syrup is evaporated to the proper point, there will be produced a cake made up of "cauliflower" shaped masses of hydrous dextrose which hold entangled the 10 to 14 per cent of non-crystallizable matter in the form of syrup. Sugar in this form is called "70 sugar," "80 sugar," "Brewers' sugar," etc. If, now, this sugar is subjected to hydraulic pressure, the non-crystallizable syrup is squeezed out and there is left a dry sugar known as "bread sugar," because of its peculiar value in bread making. If the hydrolysis of the starch is carried to a point where practically 100 per cent sugar (dextrose) is formed and the syrup after the usual purification is boiled to an exact point, a crop of needle-like crystals of anhydrous dextrose can be obtained. This product is called "anhydrous sugar."

Laboratory Control.

Just as in the manufacture of cane sugar and beet sugar the efficient working of the factory and desired quality of the product is obtained through laboratory control, so in the manufacture of corn starch and corn sugar the laboratory plays a most important part. Samples of the corn used and in process at various points and the finished products are drawn at frequent intervals and tested in the laboratory. The results thus obtained serve as a guide for the efficient operation of the plant, and the production of finished products of uniform composition and quality.

The more important determinations made include those of moisture, protein, starch, reducing sugar, oil and mineral matter. In addition to these determinations, tests will be made on waste waters in order to make sure that there is no avoidable loss. In other words, a most comprehensive system of watchfulness is exercised from start to finish to see that production is carried on efficiently and that the finished products shall be absolutely pure.

Errata.

In the July number of THE AMERICAN FOOD JOURNAL on page 359 appeared an article on recent changes in State food laws. Unfortunately, an error made the fourth sentence in the second paragraph read "* * * * the director of inspectors may quarantine", when it should have read "* * * * the director or inspectors may quarantine".

The Bacterial Examination of Water

By Fred W. Tanner, Ph. D.

Bacteriology Department of the University of Illinois.

As soon as sanitary science had demonstrated that diseases were often spread by food substances which had been contaminated with fecal matter sanitarians were impressed with the necessity of securing accurate methods for separating polluted from unpolluted foods. With this effort originated the search for indicators of pollution which forms one of the most interesting phases of sanitary history.

This subject has received most attention with regard to water, possibly because this essential of the diet is always regarded with suspicion when any undue amount of sickness appears in a community. The same methods which are being used to detect fecal pollution of water have been applied, with some modifications, to the examination of other foods, such as oysters, chopped meats, etc. Whether this may be done without some restriction demands much study.

Chemically speaking, water is never pure, since it requires the greatest care to remove all foreign substances. It is frequently called a universal solvent and this term has much significance to the chemist who has attempted to secure a *pure* water, i. e., a solution containing the monoxide of hydrogen (H_2O) only. It requires much skill and apparatus to remove, for instance, all traces of carbon dioxide (CO_2). Such a degree of purity, however, is not demanded by the sanitarian. His definition of a *pure* water is quite different since he has a different interest from the research chemist.

To the bacteriologist or sanitarian who is interested in the conservation of the public health, a water might be regarded as pure when it contained no micro-örganisms or other substances which are detrimental to health. Such a definition is not specific, for a polluted water may cause disease in one individual and not in another. This depends, to a great extent, on the susceptibility to disease of those who partake of it.

It has been the problem of sanitary science for a number of years to secure indicators which would detect fecal pollution of a dangerous nature. With these attempts is connected the *Bacillus colon* test. This has been used for a number of years and had its beginning in the early days of sanitary science. It was probably introduced by Theobald Smith in 1892. The interpretation of this test has been beset with much difficulty and has required great judgment and experience. The lack of this along with a careless attitude with regard to its application has caused much inconvenience and the test to be discredited.

Bacillus colon was discovered by Escherich during his researches on cholera. Since it was found in all cholera stools, he thought that he had found the casual organism for the above disease. Soon, however, it was found that the organism was present in normal stools. From these facts, *Bacillus colon* doubtless gained its start as an indicator of pollution. It was found to be present in the feces of most warm blooded animals and later the intestinal tract of many cold blooded animals was found to contain these bacilli.

One of the greatest reverses which this organism received as an indicator of pollution was the discovery by Rogers, Clark, Evans, Prescott, Metcalf, and Smith, that *Bacillus colon* or colon-like bacteria could be isolated from grains and grain fields which had not received evident fecal pollution. This work was of such import that it has become necessary to distinguish between fecal and non-fecal members of the colon group.

English and American bacteriologists have regarded the *Bacillus colon* test with favor but many of the German bacteriologists have fought its use. Kruse, for instance, believes that *Bacillus colon* may be found in any water, no matter from what source, provided a large enough sample is taken. Miss Chick, however, representing the English opinion, believes that it is not present in water unless it has received pollution by sewage. These, of course, are extreme opinions and probably do not represent the average opinions of the sanitarians in each country. Race, in arguing for *Bacilli coli* as an indicator of pollution, states that those cities which have many *Bacilli coli* in the water usually have a high typhoid death rate. He warns that *Bacilli coli* are merely an "inferential indication."

Much discussion has centered around the definition of *Bacillus colon* which is a very important phase of the subject. Winslow considers the group broadly speaking to be made up of all aerobic non-spore-forming bacilli which produce acid and gas in glucose and lactose media. He advises the attempt to determine whether all of the members are of the same sanitary significance and whether it is not possible to define intestinal *B. coli* more closely. This definition probably represents the consensus of opinion at present with regard to the definition. But it is still a problem to distinguish fecal and non-fecal strains. *Standard Methods for the Examination of Water and Sewage*, 1917, recommends that "the *B. coli* group be considered as including all non-spore-forming bacilli which ferment lactose with gas formation and grow aerobically on standard solid media."

The presumptive test was used for some time, but as information became more extensive the possible inaccuracy of it was established. For grossly polluted waters, the presumptive test is probably sufficient, but in such waters this pollution might be detected without the aid of a bacterial analysis. The difficulty, however, emphasizes itself when the attempt is made to classify those waters which are in that indistinct field between the two extremes of purity and pollution. The accuracy of the presumptive test was refuted most strongly by certain stream pollution studies which have been carried on in this country. Cummings recently found in Potomac river water where pollution was great that most of the gas formed in fermentation tubes was due to Bacillus colon, while in those stretches of the river which received little pollution, half of the gas formers were not *B. coli*. Gas formation under these circumstances was due to anaerobic spore-forming bacteria. Similar evidence was produced by the International Joint Commission on the Pollution of Boundary Waters. Such data has emphasized the necessity of finding out whether gas formation in fermentation tubes is really due to *B. coli* and further whether this *B. coli* is of dangerous significance.

Lactose bile was advocated for a time for the presumptive test by many bacteriologists. It was supposed that this inhibited other bacteria and a few of the weaker atypical types of *Bacillus colon.* For this reason it was deemed to be superior to the lactose broth. Jordan found that lactose bile inhibited the typical colon as well as the atypical. The work of the United States Public Health Service has also had much bearing in this connection. Cummings, in the stream pollution studies on the Potomac river, secured valuable data on this question. In 1,851 parallel sets of broth and bile tubes, lactose broth gave higher results, confirmed as well as presumptive, than lactose bile. It was granted by Cummings, however, that in the lower Potomac, remote from pollution, the bile test was more reliable. The opinion of other bacteriologists has been that for highly polluted waters the lactose broth was the better medium, and for slightly polluted waters, lactose bile gives the largest number of positive results. This is attributed to the presence of spore-forming, lactose fermenting anaerobes which are not manifest when the number of *B. coli* is large. Miss Obst also found that lactose bile inhibited nearly one-half of the typical colon bacilli. The general use of lactose broth for the presumptive test, then, seems to be justified.

On account of the difficulty in interpreting the presumptive test, it became necessary to make a confirmatory test in which it is attempted to prove that the gas formation secured in the presumptive test is actually due to members of the colon group and not to the anaerobic spore forming bacteria which have been mentioned. A procedure for confirming the presumptive test under routine conditions has been outlined by Frost, as follows:

"Three portions of each sample are planted in lactose bouillon fermentation tubes which are incubated 48 hours at 37°C., gas formers being recorded at 24 and 48 hours. After 48 hours' incubation plates on Endo's medium are made from the smallest portion of each sample showing gas formation, however slight. If typical lactose-splitting (red) colonies develop on these plates within 24 hours the result is considered positive for *B. coli.* As a check upon the accuracy of this provisional diagnosis, a typical colony is selected from every tenth positive plate for further identification. Of 1,852 colonies so selected 96% have been identified as *B. coli.*"

"Where no typical colonies develop within 24 hours upon plates made from fermentation tubes showing gas, further effort is made to recover *B. coli* as follows:

"1. Unless the plates are sterile one or more colonies are selected and transferred to lactose bouillon fermentation tubes. The formation of gas in these tubes, inoculated with aerobic gas formers, demonstrates the presence of aerobic gas formers that are *B. coli.*

"2. Plates are again made from the original fermentation tube.

"3. A transplant is made from the original fermentation tube directly to another lactose fermentation tube. If steps '1' and '2' have both failed to recover *B. coli,* plates are now made from this transplanted culture.

"4. At the same time a transfer is made from this tube directly to a third fermentation tube to carry over any anaerobic organisms which may be present. If all the above procedures fail to recover *B. coli* and gas is still formed in this tube under anaerobic conditions, the inference is that gas formation in the preliminary test was due to an obligate anaerobe.

"If the whole procedure fails to demonstrate either aerobic or anaerobic lactose fermenting bacteria, it is concluded that the gas forming bacteria, originally present in the preliminary test tube, has been overgrown or lost in the manipulations."

The detection of fecal and non-fecal members of the colon group has been made possible by the work of Rogers and his co-workers, Clark and Lubs, and Levine. It was found that *B. coli* from grains were distinguished from *B. coli* of fecal origin by the formation of twice as much carbon dioxide as hydrogen. This gas ratio was also correlated with the hydrogen ion concentration. The strains from bovine feces had a high hydrogen ion concentration. Both of the above determinations are impracticable for routine water analysis and it was found that methyl red could be used as an indicator to detect these reactions. With methyl red *B. coli* of fecal origin was acid (red), and alkaline (yellow) with members of the colon group which were not of a fecal origin. The strains of *B. coli* under study are grown in a special phosphate-dextrose broth which is tested with the methyl red. Levine found that the Voges-Proskauer reaction was also correlated with the methyl red test. The Voges-Proskauer reaction is carried out by adding 5 cc. of a 10% solution of potassium hydroxide to part of the phosphate broth used for the methyl red test. A positive reaction consists in securing a red or eosin coloration after the tube has stood over night. Members of the colon group of fecal origin are Voges-Proskauer. The correlation, then, obtains of methyl red and Voges-Proskauer—with fecal *B. coli.*

The Treasury Department has formulated the following method for the examination of water on interstate common carriers, the maximum limits of permissible bacteriological impurity being:

"1. The total number of bacteria developing on standard agar plates, incubated 24 hours at 37°C., shall not exceed 100 per cubic centimeter; provided, that the estimate shall be made from not less than two plates, showing such numbers and distribution of colonies as to indicate that the estimate is reliable and accurate.

"2. Not more than one out of five 10 cc. portions of any sample examined shall show the presence of organisms of the *bacillus coli* group when tested as follows:

"(a) Five 10 cc. portions of each sample tested shall be planted, each in a fermentation tube containing not less than 30 cc. of lactose peptone broth. These shall be incubated 48 hours at 37°C. and observed to note gas formation.

"(b) From each tube showing gas, occupying more than 5 per cent of the closed arm of fermentation tube, plates shall be made after 48 hours' incubation, upon lactose litmus agar or Endo's medium.

"(c) When plate colonies resembling *B. coli* develop upon either of these plate media within 24 hours, a well-isolated characteristic colony shall be fished and transplanted into a lactose-broth fermentation tube, which shall be incubated at 37°C. for 48 hours.

"For the purposes of enforcing any regulations which may be based upon these recommendations the following may be considered sufficient evidence of the presence of organisms of the *Bacillus coli* group.

"Formation of gas in fermentation tube containing original sample of water (a).

"Development of acid-forming colonies on lactose litmus agar plates or bright red colonies on Endo's medium plates, when plates are prepared as directed above under (b).

"The formation of gas, occupying 10 per cent or more of closed arm of fermentation tube, in lactose peptone broth fermentation tube inoculated with colony fished from 24-hour lactose litmus agar or Endo's medium plate.

"These steps are selected with reference to demonstrating the presence in the samples examined of aerobic lactose-fermenting organisms.

"3. It is recommended, as a routine procedure, that in addition to five 10 cc. portions, one 1 cc. portion, and one 0.1 cc. portion of each sample examined be planted in a lactose peptone broth fermentation tube in order to demonstrate more fully the extent of pollution in grossly polluted samples.

"4. It is recommended that in the above-designated tests the culture media and methods used shall be in accordance with the specifications of the committee on standard methods of water analysis of the American Public Health Association, as set forth in *'Standard Methods of Water Analysis'* (A. P. H. A., 1912)."

This standard has been applied to the examination of water from trains by Bartow, Creel and Hanford and of water from boats by Cobb, Williams and Letton. Bartow confirmed the presence of *B. coli* in 83 per cent of the samples examined. Creel found that gas formation in the presumptive test was due to anaerobic gas forming bacilli in 91 out of 421 samples. Such data indicate the significance of the confirmatory test. In the Treasury Standard, the routine of the confirmatory test has been much simplified. Whether this method of analysis is the best one may be determined only after it has been applied to the analysis of many samples of water from trains. Surely, it is gratifying to know that some effort is being made to protect the traveling public.

Besides the search for *B. coli* of fecal origin which has been outlined above, a routine examination of water usually includes the determination of the number of bacteria on plain agar after 24 hours at 37° C. and upon plain gelatin after 48 hours at 20°C. The count as such, has definite limitations in water analysis, as has been pointed out by Race. It is dependent upon the time and temperature of incubation and upon the medium. Race found that the highest count in the minimum time was secured at 27°C. but that the 37°C. count is nearest to the *B. coli* content.

Much discussion has centered about the relation which the count on agar bears to the count on gelatin. Generally the number of bacteria on gelatin is greater than the number of agar but a study of the subject has yielded the information that the ratio might be changed by certain conditions. During the summer months, the counts on both media approach each other while in the winter they are divergent. This subject has been taken up fully in another publication.

The sanitary significance of the count, as such, is probably secondary, for the kind and not the number of bacteria is most important. According to the law of probability, a large number of bacteria might include some objectionable forms. Furthermore, a high count accompanies much organic matter and this is indicative of sewage pollution.

The chemical examination of water has not been considered in this article. In the chemical examination, the changes in organic matter are measured. The various stages in the oxidation and reduction of nitrogen, for instance, give much information with regard to pollution and activities of the bacteria. There is, then, correlation between the bacterial and sanitary chemical examination of water and a sanitarian who wished to pass accurately upon a water will desire as much data as possible from any and all sources. In closing, it might be well to emphasize that a sanitary inspection of the surroundings of the source is often sufficient to condemn a water. The German sanitary experts have considered this more valuable than the laboratory analysis. There should be a close correlation of both, and a use of all knowledge available before condemning a water supply.

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War Meeting of the American Public Health Association.

A war meeting will be held at Washington, D. C., October 17-20, 1917, by the American Public Health Association. This will replace the annual meeting, which was to be held at New Orleans, La., December 4-7, 1917.

Preliminary programs will be mailed to all members of the American Public Health Association about September 15. Non-members may receive them free by writing to the JOURNAL.

The Work of Municipal Food Officials

By The Editor

THE highly dynamic address which Dr. Carl L. Alsberg delivered before the state food control officials in convention assembled at Atlantic City is well calculated to arouse greater interest than ordinary in the work of the city food officials. From time to time the Journal will publish reports of their work—which is fast increasing in importance and in thoroughness.

In most cities municipal food control is exercised through the department of health and in many cities the major part of such work is devoted to milk. The tendency is, however, to extend the scope of operations so as to include foods other than dairy products. Perhaps the best way to gain an intelligent insight into what "the city men" are doing is by examining the published reports of a number of representative cities.

For the sake of conciseness this article will be limited to five cities, each of which is of less than a half million population. Starting at Newark, N. J.—just across the river from New York City where Mr. L. P. Brown is effectively operating his huge machine, so well described in his convention address printed in full in this issue—we shall describe the work being done at Buffalo, at New Orleans and at Los Angeles and then enumerate the manifold activities of Dr. William C. Woodward at Washington, D. C.

In Newark the Food and Drug Division of the Health Department, during July of this year, took a total of 301 milk samples, these being itemized as follows: 55 sealed chemical samples taken, 15 sealed chemical samples below standard, 12 preliminary chemical samples taken, 3 sediment samples of milk taken, 242 bacteria samples of milk taken, 101 bacteria samples above the required amount, and 3 streptococci or pus; the dairies inspected numbered 42; dairies re-scored, 6; inspections of pasteurizing plants, 7 in number; of receiving stations, 4; of bottling plants, 11; 409 recommendations were sent farmers pertaining to the Newark milk supply; no food and drug samples were taken, although the number for June was 190; in like manner there were in the preceding month 100 milk samples taken in company with the state inspector, but none in July; there were 14 inspections for food and drug exposures; 36 complaints investigated; 28 complaints verified, 67 notices served; and 130 restaurants inspected. During the same period 343 meat establishments were inspected and a total of 9,481 carcasses were examined—1,917 beef, 1,625 calf and 3,973 lamb and sheep. Only 4 carcasses were condemned.

In Buffalo the Bureau of Food and Drugs inspected 73 city milk houses during July. There were 33,293 temperatures taken and 20,231 empty cans inspected of which 345 were rejected on account of sanitary or structural conditions; from city dealers 293 bacterial and 250 chemical and from producers 130 bacterial and 35 chemical samples were taken; the railroad milk cars inspected numbered 205; the wagons and trucks hauling milk, 10; and the city dealers' milk wagons, 201; a total of 430 dairy farms were inspected and 2,010 quarts of milk were returned on account of interdiction, temperature, etc. The cattle tagged by the Animal Industry Division for post mortem examination numbered 44—14 for tuberculosis, 23 for cripples, 6 for lump jaw and 1 for staggers; post mortem examinations of 1,788 cattle and 1,526 hogs in slaughter houses were made and of these 2 cattle and 1 hog were condemned; 4,839 carcasses were inspected—1,072 beef, 1,334 calves, 2,119 sheep and 314 hogs; 304 livers, 9 head and tongues, 6 hearts, 175 pounds of beef trimmings, 50 pounds of beef and 65 pounds of hamburger meat were condemned. The Commercial Industries Division inspected 850 commission houses, 4,923 market stalls, 175 farm wagons, 5 popcorn wagons and 5 bakery wagons; 66 restaurants were inspected, 46 were found O. K. and 2 corrections were made; 49 bakeries were inspected, 21 were O. K. and 7 corrections were made; 405 grocery stores were inspected, 298 were O. K. and 22 corrections were made; 66 confectionery establishments were inspected, 40 were O. K. and 14 corrections were made; 4 ice cream factories were inspected, 2 were O. K. and 1 correction was made; 134 soda fountains were inspected 104 were O. K. and 15 corrections were made; 141 meat markets were inspected, 124 were O. K. and 1 correction was made; 15 fish markets were inspected, 14 of which were O. K.; 5 sausage factories were inspected of which 4 were O. K.; 3 delicatessen stores and 4 soft drink establishments were inspected, all of which were O. K. The following condemnations were made; 84 watermelons, 16 quarts of cherries, 112 bushels of beans, 241 bushels of cucumbers, 2½ bushels of apples, 38 quarts of strawberries, 26 bushels of cantaloupes, ¼ bushel of cauliflower, 300 pineapples, 125 crates of onions, 45 dozen eggs, 1,140 pounds of fish, and 30 pounds of meat.

In New Orleans during July there were 482 milk samples collected and 46 violations of the milk ordinance recorded; 5,849 animals (imported), 15,269 pork loins, 537 pork shoulders and a number of pounds of miscellaneous meats were inspected; 15,274 animals were inspected at the local abattoirs of which 129 were condemned. In the market inspections 691 pounds of food were condemned.

In Los Angeles during the month of June there were 500 chemical examinations made by the Health Department, 394 milk and cream (official), 6 milk and cream (unofficial), 2 water, 2 toxicological, 8 liquor and 8 miscellaneous; the dairy and milk depots inspected numbered 863; the cattle inspected, 17,682; milk samples collected, 1,043; the cattle tuberculin tested, 429; the gallons of milk condemned, 1,595; cows condemned, 4; dairies cut off, 4, and the arrests made, 12. The meat markets inspected numbered 495; fish markets, 31; poultry markets, 27; slaughter houses, 333; cars of live stock, 113; peddlers, 12; restaurants, 864; bakeries, 137; and lunch wagons, 26. The cattle slaughtered and inspected numbered 3,981, of which 44 were condemned; the hogs, 3,189, of which 26 were condemned; the sheep, 8,413, of which 14 were condemned; the calves, 1,441, of which 3 were condemned; and the goats, 4. There were also condemned 116 beef heads, 37 hog heads, and 585 livers. The wholesale markets inspected (from 500 to 1,000 wagons) numbered 72; municipal markets, 60;

stands on municipal markets, 1,111; wagons on streets, 297; cars on railroad tracks, 2; canneries, 1; fruit stores and commission houses, 4,280; and the arrests made, 1. The following were condemned; 400 pounds of oranges, 160 pounds of cherries, 1,320 pounds of gooseberries, 8,000 pounds of lemons, 1,440 pounds of beans and 320 pounds of garlic.

In Washington, D. C., during the four weeks ending August 25, 1,075 commission houses, 13 confectioners, 27 dairies, 121 groceries, 1,189 hucksters, 382 lunch rooms, 155 markets, 40 market stands, 27 depots, 555 milk cans, 7 bakeries, 1 ice cream factory, 1 saloon and 3 drug stores were inspected by the Health Department, and the following condemnations made; 12 crates of tomatoes, 30 barrels of potatoes, 83 crates and 18 baskets of lettuce, 20 crates of peppers, 12 crates, 21 baskets and 1 box of peaches, 49 baskets and 1 box of plums, 15 cantaloupes and 23 crates of cantaloupes, 6 egg plants, 178 melons, 37 cucumbers and 1 basket of cucumbers, 23 pounds of prunes, 243 pounds of beef, 56 chickens and 1,090 pounds of chicken, 1 barrel of clams, 340¾ pounds of fish, 136¼ gallons of crab meat, 3 barrels of apples, 10 crates of celery, 46½ dozen soft crabs, 1 quart of beans and 5 pounds of hamburger meat; 680 specimens of milk, 31 of cream, 8 of hamburger steak, 1 of ice, 4 of water and 4 of air were examined in the chemical laboratory, and 67 samples of water, 1 of cream, 2 of condensed milk and 6 of ice cream were examined in the bacteriological laboratory; 37 dairy farms in the District of Columbia, 147 in Maryland and 194 in Virginia were inspected and 5,043 cattle examined; 16 applications for permission to bring or send milk into the District of Columbia for sale were received, of which three were rejected; 8 permits to bring or send milk into the District of Columbia for sale were issued and 7 were cancelled; and 26 slaughter houses were inspected and 18 calves examined at the time of slaughter and passed for food.

City Milk Contests Encourage Better Quality Milk.

Much interest on the part of both the milk producer and the consumer in cities in the quality of the local milk supply can be aroused by the city milk contest where "surprise" samples are taken. Such a city milk contest was first held in Baltimore by the Dairy Division of the United States Department of Agriculture in 1911. It has been adopted since in many other cities, especially on the Pacific Coast. The city milk contest advertises those dairies which obtain high scores as to the quality of their milk, and results in the bettering of the supply for the entire city. Frequently prizes are given by boards of trade or like organizations to those dairymen who win the highest scores in such contests.

The method of conducting such a city milk contest as used in Greenville, S. C., is typical. Milk samples were collected in the streets from each dealer each month for a year. One dairy which delivered 100,000 quarts of milk during the year was awarded an average score of 95. Another, which delivered 150,000 quarts, averaged a score of 88.5. A third, which delivered 30,000 quarts, had an average score of 81.

In that contest the grading of the milk was determined by means of the milk score card, which allows 35 points for bacteria, 25 for flavor and odor, 10 for visible dirt, 10 for fat, 10 for solids not fat, 5 for temperature, and 5 for the appearance of bottle and cap, making a total of 100 points.

In conducting a city milk contest, dealers are classified according to the kind of milk they handle, as certified, raw, or pasteurized milk. Once each month for 11 months, or oftener if desired, a pint of milk was collected from the delivery wagon of each dealer. The bacterial count, fat, and solids not fat content of each of the samples were determined in the laboratory. The temperature of the milk on the load was taken when the samples were collected. The twelfth month two pint bottles of milk were collected from the delivery wagon of each dealer. One was analyzed for bacterial count, fat, and solids not fat; the other was scored for flavor and odor and visible dirt. The quantity of visible dirt was determined by passing the milk through a sediment tester, collecting the sediment on a cotton disk.

In order to score 35 points in bacteria the milk sample must contain under 500 bacteria per cubic centimeter. A competent judge scored the sample for flavor and odor; 25 points were awarded when the flavor and odor were considered satisfactory. The sample of milk free from sediment received a score of 10, the cut depending on the quantity of sediment present. Milk containing 4 per cent or more of fat was given 10 points, and samples containing less were cut in proportion to their fat content. Samples containing 8.7 or more of solids not fat received 10 points and were cut when below that quantity. When the sample showed the temperature on the load was below 50 degrees F. it was awarded 5 points, and received a cut when above that temperature at time of collection. In order to obtain 5 points for bottle and cap the bottle must be clean, free from flaky glass, and the mouth completely covered with a cap which protects the pouring lip.

To ascertain the figure taken to represent the quality of milk supplied by each dealer the average bacterial count of the year's samples was determined. The average was given a number of points out of 35 which such a count was allowed on the milk score card. The fat and the solids not fat were likewise averaged. The flavor and odor score, sediment and bottle and cap scores given by the judge were added and likewise the temperature score.

In reporting the respective standing of the various dealers, they were classified according to their scores. Those dealers whose milk scored between 75 and 80 were put in the same class; likewise dealers scoring between 80 and 85, or 85 and 90, were classified together.

It was not deemed wise to report the scores to a tenth of a point. For all practical purposes milk supplied by dealers within a 5-point classification is on a par so far as the comparative quality of the product of each is concerned.

By collecting samples from the delivery wagons and dealers the quality of milk actually delivered to the consumers is determined. The publication of the standing of each dealer in the contest gives the consumer a definite indication as to the quality of milk which his dealer is supplying. For business reasons dealers become anxious to produce milk of high quality. Such a contest is valuable in raising the standard of milk supplied to the entire city.

Full Text of Food Survey Law

AN ACT

To Provide Further for the National Security and Defense by Stimulating Agriculture and Facilitating the Distribution of Agricultural Products.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, for the purpose of more effectually providing for the national security and defense and carrying on the war with Germany by gathering authoritative information concerning the food supply, by increasing production, by preventing waste of the food supply, by regulating the distribution thereof, and by such other means and methods as are hereinafter provided, the powers, authorities, duties, obligations, and prohibitions hereinafter set forth are conferred and prescribed.

ACTIVITIES COVERED BY THE LAW.

SEC. 2. That the Secretary of Agriculture, with the approval of the President, is authorized to investigate and ascertain the demand for, the supply, consumption, costs, and prices of, and the basic facts relating to the ownership, production, transportation, manufacture, storage, and distribution of, foods, food materials, feeds, seeds, fertilizers, agricultural implements and machinery, and any article required in connection with the production, distribution, or utilization of food. It shall be the duty of any person, when requested by the Secretary of Agriculture, or any agent acting under his instructions, to answer correctly, to the best of his knowledge, under oath or otherwise, all questions touching his knowledge of any matter authorized to be investigated under this section, or to produce all books, letters, papers, or documents in his possession, or under his control, relating to such matter. Any person who shall, within a reasonable time to be prescribed by the Secretary of Agriculture, not exceeding thirty days from the date of the receipt of the request, willfully fail or refuse to answer such questions or to produce such books, letters, papers, or documents, or who shall willfully give any answer that is false or misleading, shall be guilty of a misdemeanor, and upon conviction thereof, shall be punished by a fine not exceeding $1,000 or by imprisonment not exceeding one year, or both.

SEC. 3. That whenever the Secretary of Agriculture shall find that there is or may be a special need in any restricted area for seeds suitable for the production of food or feed crops, he is authorized to purchase, or contract with persons to grow such seeds, to store them, and to furnish them to farmers for cash, at cost, including the expense of packing and transportation.

SEC. 4. That the Secretary of Agriculture is authorized to co-operate with such State and local officials, and with such public and private agencies, or persons, as he finds necessary, and to make such rules and regulations as are necessary effectively to carry out the preceding sections of this Act.

SEC. 5. That the President, by and with the advice and consent of the Senate, may appoint two additional Assistant Secretaries of Agriculture, who shall perform such duties as may be required by law or prescribed by the Secretary of Agriculture, and who shall each be paid a salary of $5,000 per annum.

SEC. 6. That the President is authorized to direct any agency or organization of the Government to co-operate with the Secretary of Agriculture in carrying out the purposes of this Act and to co-ordinate their activities so as to avoid any preventable loss or duplication of work.

SEC. 7. That words used in this Act shall be construed to import the plural or the singular as the case demands, and the word "person," wherever used in this Act, shall include individuals, partnerships, associations, and corporations.

ENABLING APPROPRIATIONS.

SEC. 8. That for the purposes of this Act, the following sums are hereby appropriated, out of any moneys in the Treasury not otherwise appropriated, available immediately and until June thirtieth, nineteen hundred and eighteen: For the prevention, control, and eradication of the diseases and pests of live stock; the enlargement of live-stock production; and the conservation and utilization of meat, poultry, dairy, and other animal products, $885,000.

For procuring, storing, and furnishing seeds, as authorized by section three of this Act, $2,500,000, and this fund may be used as a revolving fund until June thirtieth, nineteen hundred and eighteen.

For the prevention, control, and eradication of insects and plant diseases injurious to agriculture, and the conservation and utilization of plant products, $441,000.

For increasing food production and eliminating waste and promoting conservation of food by educational and demonstrational methods, through county, district, and urban agents and others, $4,348,400.

For gathering authoritative information in connection with the demand for, and the production, supply, distribution and utilization of food, and otherwise carrying out the purpose of section two of this Act; extending and enlarging the market news service; and preventing waste of food in storage, in transit, or held for sale; advise concerning the market movement or distribution of perishable products; for enabling the Secretary of Agriculture to investigate and certify to shippers the condition as to soundness of fruits, vegetables, and other food products, when received at such important central markets as the Secretary of Agriculture may from time to time designate and under such rules and regulations as he may prescribe: *Provided,* That certificates issued by the authorized agents of the department shall be received in all courts as prima facie evidence of the truth of the statements therein contained; and otherwise carrying out the purposes of this Act, $2,522,000: *Provided further,* That the Secretary of Agriculture shall, so far as practicable, engage the services of women for the work herein provided for.

For miscellaneous items, including the salaries of Assistant Secretaries appointed under this Act; special work in crop estimating; aiding agencies in the various States in supplying farm labor; enlarging the informational work of the Department of Agriculture; and printing and distributing emergency leaflets, posters, and other publications requiring quick issue or large editions, $650,000.

Provided, That the employment of any person under the provisions of this Act shall not exempt any such person from military service under the provisions of the selective draft law approved May eighteenth, nineteen hundred and seventeen.

It shall be the duty of the Secretary of Agriculture to submit to Congress at its regular session in December of each year a detailed report of the expenditure of all money herein appropriated.

IMPORTATION OF TICK-INFESTED CATTLE PERMITTED.

SEC. 9. That the Act of August thirtieth, eighteen hundred and ninety, entitled "An Act providing for an inspection of meats for exportation, prohibiting the importation of adulterated articles of food or drink, and authorizing the President to make proclamation in certain cases, and for other purposes" (Twenty-sixth Statutes at Large, page four hundred and fourteen), is hereby amended so as to authorize the Secretary of Agriculture, within his discretion and under such joint regulations as may be prescribed by the Secretary of Agriculture and the Secretary of the Treasury, to permit the admission for immediate slaughter at ports of entry of tick-infested cattle which are otherwise free from disease and which have not been exposed to the infection of any other disease within sixty days next before their exportation from Mexico, South and Central America, the islands of the Gulf of Mexico and the Caribbean Sea into those parts of the United States below the southern cattle quanantine line at such ports of entry as may be designated by said joint regulations and also subject to the provisions of sections seven, eight, nine, and ten of said Act of August thirtieth, eighteen hundred and ninety: *Provided,* That the importation of tick-infested cattle from any country referred to in this section in which foot-and-mouth disease exists, which existence shall be determined by the Secretary of Agriculture, is prohibited: *Provided further,* That all cattle imported under the provisions of this section shall be slaughtered in accordance with the provisions of the Act of June thirtieth, nineteen hundred and six (Thirty-fourth Statutes at Large, page six hundred and seventy-four), commonly called the meat inspection amendment, and the rules and regulations promulgated thereunder by the Secretary of Agriculture, and that their hides shall be disposed of under rules and regulations to be prescribed by the Secretary of Agriculture.

HOMESTEAD LAW AMENDED.

Sec. 10. That section six of the Act of Congress approved June seventeenth, nineteen hundred and ten, "An Act to provide for an enlarged homestead," be, and the same is hereby, amended to read as follows:

"SEC. 6. That whenever the Secretary of the Interior shall find any tracts of land in the State of Idaho, subject to entry under this Act, do not have upon them such a sufficient supply of water suitable for domestic purposes as would make continuous residence upon the lands possible he may, in his discretion, designate such tracts of land, not to exceed in the aggregate one million acres, and thereafter they shall be subject to entry under this Act without the necessity of residence upon the land entered: *Provided*, That the entryman shall in good faith cultivate not less than one-sixteenth of the entire area of the entry which is susceptible of cultivation during the first year of the entry, not less than one-eighth during the second year, and not less than one-fourth during the third year of the entry and until final proof: *Provided further*, That after six months from the date of entry and until final proof the entryman shall be a resident of the State of Idaho."

Sec. 11. That the Secretary of the Interior is hereby authorized, in his discretion, to suspend during the continuance of this Act that provision of the Act known as the "Reclamation Act," requiring residence upon lands in private ownership or within the neighborhood for securing water for the irrigation of the same, and he is authorized to permit the use of available water thereon upon such terms and conditions as he may deem proper.

TERMINATION CLAUSE.

Sec. 12. That the provisions of this Act shall cease to be in effect when the national emergency resulting from the existing state of war shall have passed, the date of which shall be ascertained and proclaimed by the President; but the date when this Act shall cease to be in effect shall not be later than the beginning of the next fiscal year after the termination, as ascertained by the President, of the present war between the United States and Germany.

Approved, August 10, 1917.

Substitutes for Tin Cans.

A Bulletin of the Department of Commerce.

How to Offset Any Possible Shortage.

The Department of Commerce in cooperation with the Department of Agriculture has long been earnestly striving to increase the output of tin cans for food containers. To this end it has endeavored to increase the supply of tin, to secure the continuous movement of the materials entering into tin cans from the place of production to the place of use, and to facilitate the supply and movement of machinery for producing cans. The Department desires in every practicable way to promote the present and permanent prosperity of the tin-can industry. There is no possible doubt of the steady and growing demand for its products.

Tin plate is 98 per cent steel and 2 per cent tin. Steel is the backbone of war, and the mills have not been able to keep all their customers fully supplied at all times. Moreover, abnormal freight demands have made prompt deliveries uncertain. There have also been decreased imports of pig tin, due to decreased production and reduced shipping facilities. It is not surprising, therefore, that the tin-plate makers can not provide the can manufacturers with sufficient plate to enable them to meet the increase in the demand for cans, which is 25 to 40 per cent greater than it was last year.

It is therefore imperative that the available supply of cans be utilized, in so far as possible, for packing products that can be preserved only in tin, and that substitutes be used for other products wherever practicable. Such containers should be cheaper than tin, so that the ultimate benefit from lower costs may offset the initial expense of the substitution.

Cost and Description of Fiber Containers.

The price of glass has steadily risen and has reached a point at which any large extension of its use for food containers is impracticable. At present fiber or paper containers of good quality are being produced in considerable and increasing quantities, and for many purposes are supplanting glass and tin plate. The price of the fiber containers depends upon the size, the quality of the paper-pulp material, the number of treatments with paraffin, and the amount of printed matter on the outside. The commoner types may be obtained at 1.25 to 1.5 cents for the half-pint sizes, 1.25 to 1.6 cents for the pint size, and 1.5 to 1.65 cents for the quart size.

Fiber containers are made in various shapes and sizes adapted to different purposes and may or may not be coated with paraffin, which is chemically inert and is sometimes baked into the paper material. Some of these containers are claimed to be air-tight, proof against leakage, and protected from contamination by the paraffin. Some containers appear to be more nearly air-tight than others of the same style, probably because of better fitting covers. These containers are light in weight, pack readily for shipment, are easily opened, and are used but once.

Fiber Containers for Delivering Foods to Consumer.

The demand for "ready-to-eat" foods, such as baked pork and beans, spaghetti, etc., with the simple direction "Heat and serve," represents the largest factor in the increased use of tin cans. These foods must be processed in the containers at or above the temperature of boiling water, and no substitute for tin has been found that satisfactorily meets these conditions. However, a great economy in tin can be effected by home cooking of such products during the present shortage.

Fiber containers are recommended for the distribution by the retailer of many foodstuffs, including milk, cream, buttermilk, ice cream, oysters, sirups, marshmallow creams, dried fruits, preserves, jellies, mincemeat, horseradish, relishes pickles, deviled ham and chicken, vinegar, dry and prepared mustard, soda water, salads, sauerkraut and olives.

Fiber Containers for Packing and the Wholesale Trade.

It is claimed that dry food products such as coffee, tea, alum, baking powder, spices, raisins, and prunes may be successfully packed by producers and manufacturers in paper or fiber containers. For some of those products, bags lined with tinfoil have been in successful use for ten years or more and they form an attractive package that is said to be moisture proof.

Other commodities usually packed in tin could be marketed as well in paper or fiber, with the advantage of lower cost. Among these tobacco occupies a conspicuous position, and other articles are lye, cleansers, soap powders, shoe polishes, metal polishes, soaps and shaving preparations, toilet articles, such as talcum powder, and various dry drugs, and chemicals. Paper containers are also suggested for preserved fruits and jellies made at home. Cloth sacks for tobacco and wood for sirups and molasses are also recommended where retail sales can be made in bulk.

For packers of dry products who are opposed to the adoption of fiber containers because of the good will built up upon the style and shape of a tin container, fiber containers having a tin top and bottom are available. These containers, when labeled, have the appearance of all-tin cans, and are almost as serviceable.

Purchasers of large quantities of foodstuffs, such as hotels, restaurants and boarding houses, can also contribute directly to the tin-saving campaign by buying supplies in large cans instead of small ones. In addition to aiding in tin conservation, they will thus get the supplies at a lower rate.

Tests of Substitute Containers—Trade Lists.

Certain types of these containers are now being tested to determine to what extent the claims of their manufacturers as to their general qualities can be substantiated. Manufacturers of substitute containers who wish their products tested should send samples to the Bureau of Standards, Department of Commerce, with full information regarding commodities for which the containers are specially designed, prices, and ability to contract for early deliveries. Names and addresses of firms prepared to supply fiber and other containers may be obtained from the Bureau of Foreign and Domestic Commerce or its district or co-operative offices. Co-operation is required between the Government departments, the manufacturers of tin plate and of substitute containers, the packers of foodstuffs and of other articles commonly put up in tin, and the general public, if the available supply of tin plate is to be limited to strictly necessary uses and if, at the same time, the largest possible quantity of food is to be preserved against the special needs of the coming months.

PARTIAL ANALYSIS OF FOOD-WASTE PROBLEM

Prepared by **LUCIUS P. BROWN**, Director of Bureau of Food and Drugs, Department of Health, New York City

WASTES OF FOOD OCCUR IN ITS HANDLING AND UTILIZATION FROM THE FOLLOWING CAUSES

- I. In Producer's Hands
  - A. On Farm
    - 1. Growing Conditions
      - a. Unfavorable weather, weakening plant.
      - b. Insect pests or micro-organism infection.
    - 2. In Harvesting
      - a. Excessive rains or drouth at time of packing.
      - b. Shortage of labor.
      - c. Too long storage before shipment.
      - d. Storage under unfavorable conditions before shipment.
      - e. Too early harvesting.
      - f. Holding of cars too long because of shortage of labor.
    - 3. Poor Packing
      - a. Due to unskilled labor.
      - b. Due to shortage of labor.
      - c. Rough handling of filled package.
      - d. Unsuitable or poorly made containers.
      - e. Poor grading.
    - 4. Shipping Defects
      - a. Undue holding of cars to secure carload freight rates.
      - b. Overloading of cars.
      - c. Poor judgment or carelessness in placing packages in car.
  - B. From Woods and Waters
    - 1. Catching of young fish.
    - 2. Same causes as shown under 1A-2c; 1A-2d; 1A-3d.
    - 3. Failure to properly ice.
  - C. In Factory
    - 1. Spoilage from insanitary conditions.
    - 2. Spoilage due to unskilled labor or labor shortage.
    - 3. Insufficient number or poor quality of containers.
    - 4. Failure to use by-products.
- II. In Transit (in hands of transportation companies).
  - A. At Shipping Point
    - 1. Shortage of cars.
    - 2. Congestion on loading trucks.
  - B. In Handling Trains
    - 1. "Slack" Management
      - a. Poorly designed or improper cars.
      - b. See also 1A-4c.
      - c. Trains skipping icing stations.
    - 2. Defects in Handling
      - a. Refrigeration defective or lacking altogether.
      - b. Cars not rendered frost-proof.
    - 3. Delays in Transit
      - a. Due to poor management.
      - b. Due to strikes, etc.
      - c. Due to floods, storms, etc.
  - C. After Arrival at Destination
    - 1. Congestion at Piers or Other Terminals
      - a. Due to track shortage.
      - b. From undue length of demurrage.
      - c. Strikes or other labor troubles.
      - d. Due to shortage of storage place for goods.
    - 2. Ill-advised Reconsignment.
    - 3. Undue Holding of Cars
      - a. Through slack management.
      - b. To profit by market changes (at consignee's order).
    - 4. Abandoned by Consignee
      - a. Wholly unsound.
      - b. Partly unsound and overhauling not profitable.
      - c. Partly unsound but facilities to salvage unavailable.
      - d. Market conditions believed to be unfavorable.
    - 5. Rough handling at terminals.
- III. In Distribution (from hands of transportation company to consumer)
  - A. Wholesale
    - 1. Holding too long.
    - 2. Inefficient cars.
    - 3. Poor storage facilities.
    - 4. Goods stored in poor condition.
    - 5. Overstocking.
    - 6. Damage by rats, insects, etc.
    - 7. Failure to remove promptly from terminals.
  - B. Retail
    - 1. Carelessness or inefficiency.
    - 2. Through fancies of customers.
    - 3. Due to trimming, etc.
    - 4. Overstocking.
    - 5. Exposure to dust and insects.
- IV. In Kitchen
  - A. Hotel or Restaurant Kitchen
    - 1. Stale bread thrown away.
    - 2. "Slack" business methods.
    - 3. Portions too large and too many gratis "side-orders."
    - 4. Too much variety in dishes or single items, e. g. bread.
    - 5. Overstocking.
    - 6. Influence of custom, e. g. serving sugar on table.
    - 7. Improper disposal of waste products, e. g. burning of garbage
  - B. Private Family
    - 1. Unbalanced ration.
    - 2. Letting good food go into garbage pails and sinks.
    - 3. Poor facilities for and ignorance in handling foods.
    - 4. Poor cooking.

Wastes in the Food Supply, due to Economic Reasons and resulting therefore in loss of money to the consumer, occur in Trade Channels in part from the following causes:

A. No Terminal Markets.
B. Duplication of Marketing Facilities.
C. Expensive Cartage.
D. High retail delivery costs.
E. Unnecessary credits.
F. Extravagance in service and display.
G. Failure to buy home-packed goods of equal quality.
H. Failure of retailer to use proper merchandising methods.

RETAIL PRICES SEPTEM

Average Price Per Pound	Average Price per 100 Calories	CANNED FOODS	Augusta, Me.	Boston, Mass.	Malden, Mass.	Plymouth, Mass.	Cambridge, Mass.	Providence, R. I.	Hartford, Conn.	Average for New England	Washington, D. C.	Harrisburg, Pa.	Roanoke, Va.	Lexington, Ky.
12.9	1.36	String Beans, No. 2, Std., 1 lb. 3 oz.	15	15	15	18	15	13	18	15½	16	13	12	20
12.7	2.88	Corn, No. 2, Std., 1 lb. 4 oz.	18	16	20	20	16	13	15	17	17	12	18	20
12.3	4.92	Peas, No. 2, Std., 1 lb. 4 oz.	17	14	18	17	16	17	18	17	17	12	18	20
8.6	8.64	Tomatoes, No. 3, Std., 2 lb. 1 oz.	18	18	20	25	18	20	20	20	17	15	18	20
13.3	5.32	Peaches, No. 2½, Std., 1 lb. 13 oz.	25	18	25	35	18	25	25	24	27	25	25	30
13.1	1.87	Pineapples, No. 2½, Std., 1 lb. 14 oz.	25	25	27	30	20	20	28	25	26	30	25	30
24.6	3.72	Salmon, No. 1, tall, red Alaska, 1 lb.	25	25	25		22	26	28	25	27	25	30	30
53.1	5.77	Sardines, ¼, oil key, Dom., 3¼ oz.	13	12	15	13	8	10	15	13	8	9	10	12
		CEREAL PRODUCTS												
6.8	.42	Wheat Flour, No. 1, Pat., 49 lb. bag	330	370	380	370	350	360	390	364	380		325	350
7.0	.44	Rye Flour, Std., 24½ lb. bag	165	184	190	196	212	155	180	183				
7.7	.41	Graham Flour, 10 lb. bag	70	75	80	50	70	60	80	69			67	75
19.0	1.15	Shredded Wheat, 12 oz.	14	12	12	15	12	13	15	13	12	12	15	15
13.8	.84	Cream of Wheat, 1 lb. 12 oz.	25	22	22	22	14	20	25	21	24	24	15	30
9.8	.54	Quaker Oats, 1 lb. 4 oz.	10	10	10	10	10	10	12	10	11	11	12	15
8.0	.44	Rolled Oats, Bulk, lb.	7	6½	8	7	7	7		7	7½	7		
10.8	.68	Rice, Fancy Head, lb.	10	10	10	12	10	12	12	11	12	10	13	12½
24.5	1.50	Kellogg's Tstd. Corn Flakes, 8 oz.	12	10	12	12	10	12	12	11	11	11	13	15
6.1	.38	Corn Meal, lb.	7	6½	8	8	7	6	7	7	6½	8	5	6½
8.8	.55	Hominy Grits, lb.		6	8		7	7		7	6	8		15
12.0	.74	Pearl Barley, lb.		7	7	17	7	9	10	9½	10	8		8
10.7	.91	Bread, lb.	9½	6		10	9	12	9	9			12	9
16.6	.87	Crackers, Bulk, Soda, lb.	15	15	15	18	12	13	18	15	12½	14	18	20
25.6	1.35	Uneeda Biscuit, 4⅝ oz.	7	7	7	8	6	7	7	7	7½	7	8	8
13.0	.80	Macaroni, Bulk, lb.	15	13	13	10	12	8	15	12	15	13	10	
		DRIED FRUITS												
13.6	1.03	Evaporated Apples, lb.	12½	16	20	14	20	16		16	15	10	10	12½
15.3	1.27	Evaporated Peaches, lb.	20	12	27	15	15	14	25	18	17	15	12	16
15.7	1.35	Prunes, Medium Sized, lb.	15	15	14	15	14	15	18	15	15	15	13	12½
		SUGAR AND SYRUP												
9.8	.54	Granulated, lb.	10	9	9½	10	9½	11	10	10	9½	9	10	11
7.9	.55	Corn Syrup, 10 lb. pail			85	83		65	80	78	85	75	75	80
24.0	1.62	Comb Honey, lb.	25		25	33		23	28	27	25	30	25	20
31.0	1.38	Cocoa, Bulk, lb.	20	26	41	40	20	25	30	29	30	18	50	
		FATS												
48.5	1.40	Creamery Butter, Fancy, lb.	48	45	50	54	46	44	53	49	50	50	50	50
29.3	.72	Pure Leaf Lard, lb.	28	26	28	28	28	23	30	27	29	28	30	30
30.5	.89	Oleomargarine, Uncolored, lb.	30	30	33	25	22	30	32	29	30		28	35
54.6	1.36	Italian or Spanish Olive Oil, qt. tin	120		125		125	100	100	114	95		100	125
28.4	.71	Cottonseed Oil, qt. tin			70		56	50		59	35		40	45
28.7	.72	Corn Oil, qt. tin		55	55	55	60			56		85		40
5.1	1.64	Milk, qt.	10	15	14	14	10	12	13	13	12	10	12	12
32.1	1.54	Cheese, American, Cheddar, lb.	32	32	30	35		31	33	32	32	32	35	40
29.3	4.88	Eggs, fresh gathered, firsts, doz.	54	55	67	68	62	48	60	59	50	40	45	40
		VEGETABLES												
2.9	1.00	White Potatoes, bu.	160	180	160	165	152	152	175	163	160		160	190
6.2	1.38	Sweet Potatoes, bu.	275	385	275	330	275	220	150	271	240		320	250
4.0	2.00	Onions, lb.	5	5	6	5	5	3	3½	5	4		6	3½
18.6	1.17	Lima Beans, dry, lb.		20	20	17	14			18		18	15	23
19.3	1.20	Navy Beans, dry, lb.		18	18		18			18		18	15	25
		MEATS AND FISH												
28.4	4.37	Beef Round Steak, lb.	38	30	28	42	38	31	42	36	34	27	30	30
33.1	3.94	Leg of Lamb, lb.	38	32	34	35	32	34	34	34	35	33	40	40
28.3	3.25	Leg of Mutton, lb.	33				28	30	25	29	30		30	38
35.0	2.85	Pork Chops, lb.	38	38	40	40	35	30	40	37	39	38	35	35
34.8	6.96	Veal Cutlets, lb.	40	40		45	30	42	45	40	43	34	35	40
43.8	2.30	Ham, Sliced, med. fat, lb.	40	42	45	46	42	36	55	44	40	43	35	40
37.0	12.75	Chickens, Broilers, lb.	38	30	30	42	31	35	38	35	40	43	30	40
21.9	6.08	Salt Cod, lb.	11	18	23	22	16	21	25	19	22½		15	15
18.7	1.87	Salt Mackerel, lb.	12	18	20		16	16	25	18	20	17	18	20
24.8	5.51	Halibut, lb.	25		30	35	26	23	25	27				22½
24.3	3.80	Salmon, lb.	30	25	30	35	25	23	30	28				22
20.2	6.31	Whitefish, lb.	10		14		12		28	16			10	25

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Austin, Tex.	Lima, Ohio	Columbus, Ohio	Chicago, Ill.	Madison, Wis.	Des Moines, Iowa	Topeka, Kans.	Denver, Colo.	Portland, Ore.	San Francisco, Cal.
15	15		15	15	15	15	15	15	15
15	18	15	15	18	15	15	15	15	15
15	15	15	15	15	15	15	15	15	15
18	20	20	20	20	20	15	15	15	15
25	25	35	25	25	20	18	30	25	25
25	25	25	25	25	25	25	30	25	25
25	28	20	28	20	30	25	30	20	20
10	15	10	10	15	8	6	15	5	12½
325	335	300	370	350	350	300	300	275	335
			165	170	180	150	185	155	170
75	75	85	90	85	80	60	85	75	85
15	15	15	15	15	15	14	15	12½	17½
25	28	25	25	25	25	25	25	22½	25
15	12	12	12	13	10	12	12½	12½	17½
	7	10	7	8	6	9	10	8	9
10	10	12	10	10	12½	10	12½	10	10
10	12	15	12	12	12½	10	15	12½	15
6½	6	5	7	6	6	4	5½	7	6½
7½	15		7		6	8	15		8½
15	10	13	10	8	27	15	15	12½	12½
10	10	15	11½	10	10	15	10	9	10
15	20	15	18	15	18	10	15	20	20
7½	8	8	7	8	7	6	7½	7½	7½
13	12½	12	18	21		11	15	10	12½
17						15	15	15	12½
12½	20	20	13	13	15	18	15	15	12½
15	15	18	15	18	20	15	20	15	15
11	10½	9	9½	10	9	10	10	9	10
65	80	75		85	95	85	95	60	65
17	22	25	23	20	25	20	25	20	20
50	25		28	25		22	50	24	25
50	48	48	48	47	48	44	48	47½	55
32	30	30	28	30	30	26	35	31	30
	32	30	32	28	33	25	35	30	35
110	100	120	90	100	100	100	105	100	110
35	70	50	60		65	70	80	40	50
	55		50	45	65				35
12½	11	11	12	9	12		12	10	10
35	37	32	35	30	30	28	40	30	30
50	40	40	45	40	40	37	50	45	50
260	180	150	180	130	150	140	150	180	180
260	550	320		385	550	160	458	440	220
5	5	3	5	4	5	3½	3	3	1½
20	20			20	20	18	20	17½	17½
20	20	23	20	20	20	18	25	17½	15
25	32	26	32	27	30	30	35	20	25
35	40	25	32	32	40	40	35	25	30
35	30		27	26	35	30	30	22	20
30	38	37	32	36	40	28	40	35	35
25	40	35	40	30	40	30	45	20	35
60	50	40	45	42	47	40	50	45	40
60	33	35	32	31	35	35	45	28	45
	25	20	22	24	30	20	25	35	16
	20	15	22		25	20	15	15	25
	23	20	27	24	30	25	25	17½	20
	30	20	27	24	30		30	20	15
	20	12½	25	27	25		33	15	7

WAR-induced thrift is throwing the spot light of publicity upon the retail prices of foodstuffs. Cost per calorie is commencing to have a real meaning for the general public.

Readers of this JOURNAL may have noticed the constant growth of this chart, the publication of which is made possible by the courtesy of the state food commissioners who furnish this office with the requisite data. At the suggestion of the Food Administration the articles listed will be somewhat increased in number in succeeding months, and every effort will be made to obtain prices from a sufficient number of cities to render the figures true averages. It happens this month that the figures from Nashville were obtained on the 20th of last month and from Madison on the 6th of September. Otherwise they are all as of September 1.

While statistics are at all times to be handled carefully lest they mislead, and while the calorie value of a food does not tell its full value, it is undeniably true that at the present moment the calorie value is the best measure known and until supplanted by some composite factor taking cognizance of the highly important matter of protein and the equally important matter of those vitalistic principles commonly termed vitamines, the calorie unit of measurement will, undoubtedly, be continued to be employed. It is an excellent "working hypothesis."

Among the larger concerns taking an active interest in the prices obtained by retail grocers is the American Sugar Refining Company of New York City. This company recently secured data from 7,047 retailers in twenty states for the week ending July 28, 1917, the information obtained being the retail price asked for five pound bags and cartons of Domino sugar. The questionnaire was sent to eastern and southern states only, Illinois being the westernmost state represented in the list. Of the total of 7,047 answers received, 2,268 came from New York, 1,054 from Massachusetts, 381 from Indiana, 331 from Connecticut, 324 from New Jersey, 304 from Illinois, and from the rest of the states on the list came replies running from 275 to 46. It is thus seen that for the district under discussion the numbers are sufficiently numerous to afford a fair basis for deductions.

Of the dealers represented about 30 per cent were selling this sugar at the rate of 5 pounds for from 40 to 44 cents inclusive and the remaining 70 per cent, or 4,194 dealers, were selling the sugar at 45, 48 or 50 cents. It is of interest to compare these figures with the chart published in the August issue of this JOURNAL in which the average price per pound for granulated sugar was given at 9.4 cents a pound at which figure the fuel value of granulated sugar is 5.2 cents per thousand calories.

At the request of the New York City Department of Health a most comprehensive tabulation of retail prices and costs per calorie has recently been prepared by F. C. Gephart, Ph. D., chemist of the Russell Sage Institute of Pathology. This compilation forms part of a pamphlet put together by Drs. L. Emmett Holt, Graham Lusk, Linnaeus E. LaFetra and Godfrey R. Pisek, the subject being "Food for Children from Two to Seven Years Old." This authoritative statement is based upon present prices and is of sufficient importance to warrant partial reproduction, Dr. Gephart's tables being accompanied by fragmentary excerpts from the accompanying most excellent text. The tables follow:

Fats.

In the following table the fats are arranged according to their food value and their price per pound:

	Cost of 1,000 calories. Cents.	Price per lb. Cents.
Cottonseed oil	7.3	31
Oleomargarin	8.5	30
Peanut butter	8.8	25
Butter	11.9	43
Olive oil	12.1	51
Bacon	13.8	37
Cream (extra heavy, 40%)	19.8	65*
Bacon, sliced, in jars	22.2	65

*Pint.

Animal fats are superior to vegetable fats as foods. Of the animal fats, oleomargarin is altogether the most economical; its wider use is to be recommended.

Carbohydrates.

These include cereals, vegetables, bread stuffs, sugar and sweets.

I. CEREALS.

Cereals may be purchased in bulk (loose) or in special packages, the latter being always more expensive.

Cereals arranged according to their food value and price per pound:

	Cost of 1,000 calories. Cents.	Price per lb. Cents.
Corn meal, in bulk	3.6	6
Hominy, in bulk	3.6	6
Broken rice, in bulk	3.7	6
Oatmeal, in bulk	3.8	7
Samp, in bulk	4.2	7
Quaker oats, in package	4.4	8
Macaroni, in package	4.5	12
Wheat flour, in bulk	4.6	8
Malt breakfast food, in package	4.8	14
Pettijohn, in package	5.3	12
Cream of wheat, in package	5.7	10
Farina, in package	5.9	12
Cracked wheat, in bulk	5.9	10
Pearl barley, in package	6.0	10
Barley flour, in bulk	6.1	10
Whole rice, in bulk	6.1	10
Shredded-wheat biscuit	7.8	13
Wheatena, in package	8.1	14
Grape-nuts	8.6	15
Force	9.4	16
Corn flakes	11.7	20
Puffed rice	23.5	52

To be recommended as the cheapest, if purchased in bulk, are oatmeal, corn meal, hominy, samp and rice.

II. VEGETABLES.

	Cost of 1,000 calories. Cents.	Price per lb. Cents.
Turnips	20.0	2.5
Sweet potatoes	21.8	10.0
White potatoes	25.8	4.0
New beets	27.6	5.0
Onions	29.3	6.0
Spinach	30.0	3.3
Green peas	39.2	10.0
Lima Beans	39.2	10.0
Cauliflower	42.9	6.0
Carrots	50.0	8.0
String Beans	55.6	10.0
Squash	76.2	8.0
Lettuce	89.4	7.0
Celery	214.0	15.0

The value of vegetables depends not only upon the amount of fat, carbohydrates and protein they contain, but also upon their richness in iron and other important salts and upon the amount of fiber which aids proper action of the bowels. They are indispensable to a proper diet in spite of their relatively high cost.

III. BREAD STUFFS.

	Cost of 1,000 calories. Cents.	Price per lb. Cents.
Ginger snaps	6.3	12.0
Graham bread	8.2	10.3
White bread	8.5	10.3
Rye Bread	8.7	10.3
Graham crackers	9.2	18.0
Soda crackers	9.4	18.0
French rolls	10.8	14.0
Uneeda biscuit	12.4	24.0

Bread and rolls should be stale (two days old) or dried on the stove or in the oven till crisp. Crackers usually cost much more than bread of equal food value.

Protein Foods.

Attention is called to the fact that the protein foods as a class cost much more than either the fats or the carbohydrates. One of the greatest difficulties to be overcome in furnishing a proper diet at moderate cost is to supply the proteins in the amount needed. Altogether the cheapest and best protein for children is that found in milk.

	Cost of 1,000 calories. Cents.	Price per lb. Cents.
Milk (Grade A)	18.5	13*
Roast beef (rib)	23.4	26
Buttermilk	26.5	9*
Lamb chops (loin)	32.7	43
Lamb chops (rib)	34.9	38
Young codfish (fresh)	38.6	12
Chicken (roasting)	41.3	32
Eggs	44.7	45**
Beef steak (round)	45.6	34
Haddock	46.0	12
Flounder	50.0	12

*Quart. **Dozen.

At certain seasons and in certain places other varieties of fresh fish are cheap and useful. Some vegetables are very high in protein and may largely replace meat in the diet; such are, the various kinds of beans and peas, either fresh or dried; they may well be given as soups. If these are furnished, together with milk and bread, meat may be dispensed with altogether. Of the cereals, the preparations of wheat and oats contain most protein.

Fruits.

	Cost of 1,000 calories. Cents.	Price per lb. Cents.
Fresh (in season)—		
Grapes	14.9	5
Rhubarb	15.4	1
Bananas	20.0	6
Apples	23.7	5
Pears	46.0	12
Oranges	58.8	10
Peaches	96.7	15
Dried—		
Prunes	8.4	10
Apples	11.1	15
Peaches	12.5	15
Apricots	15.5	20

Many fresh fruits are too expensive for general use except for short periods when they are in season and abundant; at such times they should be used freely.

Mixed Flour in the Home.

It is of interest to know that the U. S. Department of Agriculture is making known to the housewife the results of experimental work by H. L. Wessling of the Bureau of Chemistry in connection with risen bread made from flour part wheat and part corn. It is stated that corn meal lends itself to the making of "light" bread in combination with wheat flour. It can not, of course, replace wheat flour entirely, but may be used in any proportion up to 25 per cent of the total flour required and still produce an attractive loaf of bread. Although its volume may be somewhat smaller and its texture somewhat poorer than if made from all wheat flour, such a loaf will be light and spongy, with a rich brown crust, wholesome, and very palatable.

Two methods for wheat-and-corn bread have been formulated and tested by H. L. Wessling, assistant chemist, in the Bureau of Chemistry, United States Department of Agriculture. According to the one method the raw meal is employed directly in preparing the dough and no extra time or labor is required in making the bread this way. According to the second method the meal is partially cooked before introducing it into the dough. While this does entail a slight amount of additional time and labor, the result is a loaf of better quality which well repays the extra effort expended.

Care of Confectionery

By Walter C. Hughes,

Secretary, National Confectioners' Association.

This is the fourth of a series of six articles which is being published monthly relative to the above subject. The first dealt with the subject in a general way; the second with Chocolates and Chocolate Confections; the third with Hard Boiled Candies; this, the fourth, deals with Nut Candies: the fifth will discuss Marshmallow, Fudges and some other special kinds; and the sixth will be a general summary of the entire subject with suggestions relative thereto.

In attempting to classify the different kinds of confectionery, and to emphasize and particularize the special care that should be given each kind, I have been impressed with this great big fact—that, *all kinds need special care.*

To say that one kind needs more careful attention than some other kind is merely to state that under special weather, store or locality conditions, certain kinds need more careful attention than certain other kinds.

For example—hard candies are especially susceptible to damp weather conditions, marshmallows to cold weather, fudge to dry weather, chocolate and nut candies to warm weather.

However, the retailer sells all of the different kinds of staple confectionery and, therefore, eternal care is the price that he must pay for minimum losses on account of unsalable goods.

I venture an opinion which will probably not go unchallenged, that the average retailer has in mind just two general kinds of confectionery that he thinks requires special care and attention—chocolates and hard candies.

That he should devote just as much thought and attention to the care of marshmallows or fudges or caramels or pan-work or nut candies, does not occur to him.

The reason for this attitude of mind on the part of the retailer is not hard to find.

When chocolates are gray or mushy and hard candies are sticky, their condition is emphasized in the mind of the retailer because of their unsalability.

But with certain other kinds of candy that may be stale or a little off quality, they can be frequently "palmed off" on an indifferent customer and the retailer shakes hands with himself because he was able to *get rid of them.*

Getting rid of them is poor business policy—there ought not be any necessity for *getting rid* of anything. Rather should the retailer condemn himself for having in stock anything that should be *gotten rid* of, because of its condition.

And that is why there should be so much emphasis placed on the great importance of the intelligent care of *all kinds* of confectionery.

In previous articles, I have emphasized the importance of keeping constantly in mind the fact that *candy is a food* and very high in food value.

You cannot do a greater service for yourself and the industry in which you are engaged, than to tell your customers that candy is pure, wholesome and very high in food value. The average consumer thinks of candy only as something mighty good to eat and does not know that it is a good food.

Nut candies are especially high in food value, they supply protein as well as energy. Nuts contain protein, fats and carbohydrates. With but few exceptions, the nuts commonly used by manufacturing confectioners, average approximately 3,000 food calories per pound, as compared with lean beef, which averages approximately 1,200 calories per pound.

When combined with sugar they, therefore, rank very high in food value.

And right here, I want to tell you about *Candy Day*—which this year is *Saturday, October 6th.*

Candy Day is the "Billy" Sunday to the confectionery industry. It comes to you and your customers with a great message, the good gospel of pure and wholesome candy, the kind of candy that people want to eat, the kind that is a food as well as being pleasant to the taste—and Candy Day was established for just that purpose—to educate your customers, the consumers.

Ask the manufacturers or jobbers from whom you buy your candies to send you some of the artistically designed Candy Day Advertising Novelties, which may be had free—and with which you can make a very attractive Candy Day advertising display, and let your customers know that you are on the job, when it comes to up-to-date ideas.

Remember that is a great opportunity to popularize candy and increase your sales and profits.

But to return to our original subject: Certain kinds of nut candies are shamefully abused.

For the purpose of making a "big display," it is the common practice with a great many retailers, especially in the larger cities, to "fill" a show-window with open boxes, or pails, of smooth coated jordan almonds, or even dump them into a pile, as if they were so many rocks or bricks. Those which come in contact with the glass in the window, soon become spotted and discolored and anything but tempting to the "man on the street." If in a window where the sun shines, the delicate colors are soon faded, and even if the sun does not shine on them, bright daylight will fade the colors into one monotonous, unattractive, dirty shade—they are then the kind that must be "*gotten rid of*" somehow.

This gives me an opportunity to again disgress by stating most emphatically that retailers make a very bad mistake when they display in their windows or stores an inferior grade of smooth coated almonds and label them "jordan almonds," as is frequently done, especially by certain classes of retail stores. The consumer is quick to notice the difference. Broad, flat smooth coated almonds cannot be "*palmed off*" on a discriminating customer, as genuine jordan almonds, without him getting sore about it, any more than you can sell a fellow a gold brick and make him feel glad that he bought it and come back for more. Both are confidence games. Be honest with your customer and he will know where to go for good service.

Smooth coated jordan almonds should always be kept inside the store and displayed in air tight glass jars. Their colors are too delicate and the velvety coating too easily soiled to take any chances by displaying them in any other manner.

The sooner the retailer learns the value of glass jars for general display purposes, the sooner he will be taking a long step in the right direction towards efficiency and the right kind of retail merchandising.

Cream filberts and cream almonds require the same careful treatment as smooth coated jordan almonds. They should not be displayed in open boxes or trays, as they dry out very quickly, become hard, and have a chalky appearance. In air tight glass jars, they will keep nice and soft and the crystal remain bright almost indefinitely.

It seems to be the common practice with the retailer to dump a lot of cream almonds or cream Filberts into a show window, evidently for the purpose of tempting some one to buy them. In a very short time, dust settles all over them and they are dirty, unattractive and create about as little desire to purchase, as so many mud marbles. Might as well expect a snowball to stay white in a coal mine as to expect cream filberts or cream almonds to stay white if displayed openly in a show window.

The delicate crystal and pure white coating should be carefully protected with glass jars.

The secret of success in selling all kinds of nut candies, particularly peanut candy, is to have it crisp and fresh when delivered to the consumer, and that the peanut candy should have the delicious and tempting odor of fresh roasted peanuts.

The boxes in which peanut candy is packed are always lined with wax or paraffined paper for the purpose of keeping out the moisture and keeping the candy fresh and crisp and retaining the odor of the fresh roasted peanuts.

Only one layer at a time should be uncovered and care should be used to see that the wax or paraffined paper completely covers the next layer underneath. This method of handling will keep the candy fresh and crisp and in fine condition.

During the summer months, fudges and Italian cream specialties containing nuts should be kept in a cool place, not too dry. If displayed in open boxes, the dry, warm air will soon dry them out and they will be tough. They should retain the moisture that they contain when delivered, if they are to be temptingly fresh and tasty. This class of goods, if dry and tough, is anything but good eating.

There are certain conditions peculiar to nut candies, during the summer months, with which all retailers are familiar, that for obvious reasons need not here be referred to in detail.

All kinds of nuts deteriorate very rapidly in hot weather, unless they are kept in a cool place.

The only way these conditions can be absolutely avoided is to order in comparatively small quantities, and that brings me to the last and most important rule to observe, relative to nut candies of all kinds, especially during the summer months—*do not overstock.*

Keep your stock nice and fresh by ordering frequently—and what is true of nut candies, to a greater or less extent, is true of all kinds of confectionery.

Be particular—buy the best quality—and insist upon that quality being maintained all the way through to the consumer. Get your customers in the habit of expecting from you nothing but the best—and there are no candies that it is so important that you should keep this rule constantly in mind as—nut candies.

The Need for Better Regulation of Oyster Farming.

At the recent convention of the National Association of Fisheries Commissioners at Providence, William H. Raye, president of the North Atlantic Oyster Farms, Inc., made an address in which he called attention to some of the difficulties that prevent the oyster farmer from utilizing the great stretches of submerged land, now barren, which are adapted to the production of oysters. After stating that one-third of the oysters consumed are now cultivated on land leased from the states, he said:

"We have thousands upon thousands of acres of oyster ground producing but a small part of what it is capable of being made to produce, if only conservation can be brought about and encouragement and assistance given to those who are willing to invest their money and time in developing these hitherto barren grounds. And yet these farms under water are now threatened with extinction, unless aid is to be had.

"Already a marked decline is apparent in the annual output of oysters, from Northern waters, at least, and a still shorter crop threatens. To bring the seriousness of this situation home to all I would like to summarize and point out some of the most urgent needs of the industry.

"The first and greatest menace to our existence is the manufacturing waste and acids now emptying so freely into nearly all our bays and streams, and causing an inconceivable amount of damage, not only to the oyster industry, but to the entire fishing industry of the coast. While no scientific information is available on this subject, it is the generally accepted theory, among oystermen, at least, that the scarcity of sets in recent years can be directly attributed to the many acids present in the waters that have killed the spawn or young oysters.

"The last set of any consequence was that of 1914, and that in no way compares with the average of former years. Today there are less oysters on the grounds of Northern farms than at any time in the last twenty years.

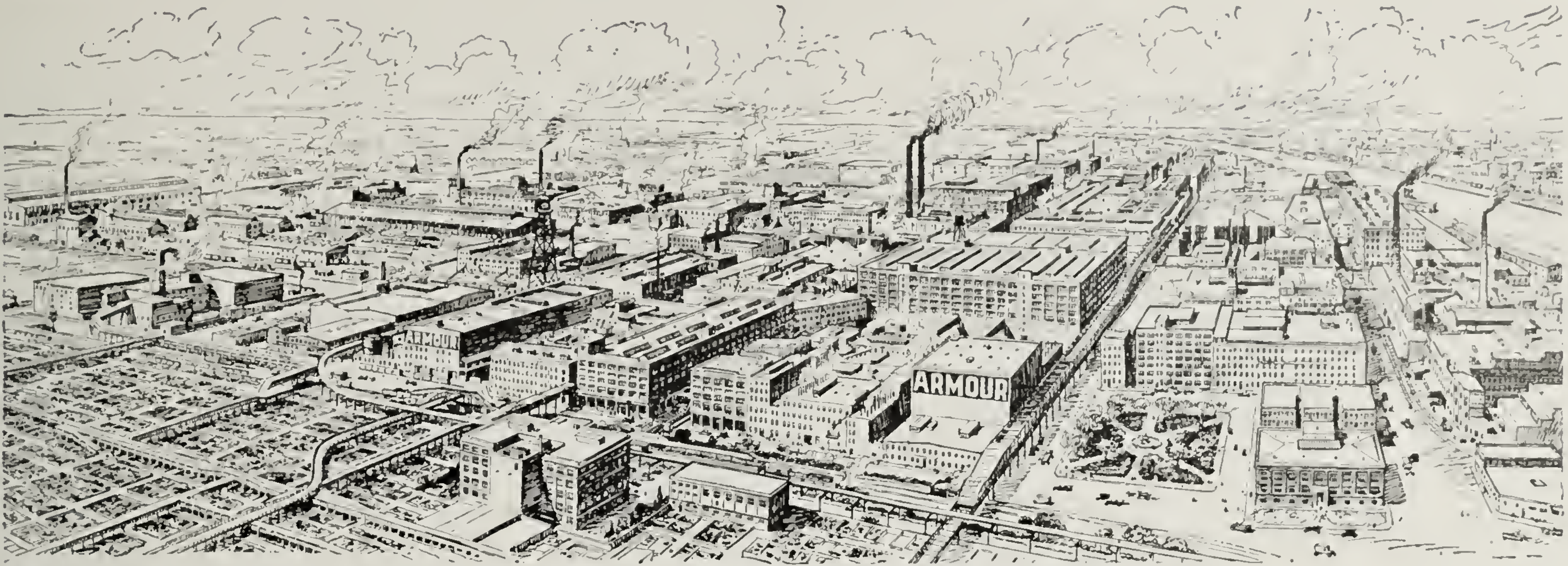
"Now the whole existence of our business is based upon our ability to obtain sets, and if acids and other wastes are to be dumped freely in our bays and harbors we may as well save the expense of preparing our grounds and look elsewhere for a better protected industry.

"The fact that oysters no longer grow as well or yield as well in meats is unquestionably due to this same cause, for the oyster obtains its food from the water which it filters, and what must the effect of these acids be upon minute forms of life upon which oysters and other forms of life depend for their food? Green oysters have recently been seized and condemned by the New York city health authorities on the claim that the color was due to excessive copper from manufacturing waste."

He called attention to the necessity for the co-operation of the states in controlling the star-fish and the oyster-drill, and eliminating the oyster thieves, and spoke of the loss in working the free, natural oyster beds.

"There is still another economic problem, and perhaps the most difficult of all to solve, and that is the conservation of our so-called natural grounds. Years of custom have bred into us the idea that these natural beds so-called were and should remain the property of all citizens and as such they have been treated, even though but a very small per cent of the citizens of the state have been able to share the privilege. Those that have worked these grounds have done so without regard to the best means of conservation and development, for in spite of all attempts by various states to protect these areas, the idea uppermost in the mind of the average human bayman has been 'how can I get the most out of this in the shortest space of time'? It has always been a day wage proposition with the individual, and his interest in it has been measured by the standard of whether he could make more catching oysters than he could as a mechanic or in some other trade, not that all of these were blind to the result, but what encouragement could the individual have to practice conservation when his fellow men were working for what they could get at the moment and without regard for the morrow?

"It is unfortunate, but nevertheless true, that many originally valuable grounds have been allowed to be worked out and state laws have decreed that they must remain so for a number of years before they could be leased and brought under cultivation by the oyster farmer."



ARMOUR AND COMPANY'S CHICAGO PLANT

IN uncertain times like the present, the importance of a trade-mark on foods takes on increased significance. For, it definitely fixes the responsibility for their origin and, by putting back of them the reputation of their manufacturers, becomes an assurance to consumers of sustained quality. The Armour Oval Label has behind it the jealously guarded Armour reputation of fifty years' standing—far too much at stake for the future to permit of anything but the very highest grade being sold under it.

Armour's QUALITY PRODUCTS

ARMOUR AND COMPANY
UNION STOCK YARDS, CHICAGO

1648

Recent Patents

The following patents of interest to readers of this journal recently were issued from the United States Patent Office. Copies thereof may be obtained from R. E. Burnham, patent and trade-mark attorney, Real Estate Trust Building, Washington, D. C., at the rate of 20 cents each. State number of patent and name of inventor when ordering:

1,234,662. Method of treating flour or the like. Charles Herendeen, Chicago, Ill.

1,234,663. Apparatus for treating flour or the like. Charles Herendeen, Chicago, Ill.

1,234,697. Apparatus for removing stems from fresh fruit. John B. Foote, Oak Park, Ill.

1,234,698. Apparatus for stemming fruit. John B. Foote, Oak Park, Ill.

1,234,858. Baking compound. Thomas G. Blacklock, Brooklyn, N. Y., assignor to Peter B. Olney, Jr., trustee, New York, N. Y.

1,235,161. Process of drying milk. John Roeh, Spokane, Wash., assignor to Crystallized Milk Co., same place.

1,235,330. Process of preparing bread-dough. John H. Kretner, Brooklyn, N. Y.

1,235,420. Process of making dough by germination in salt solution. Carlo Bonafede, Milan, Italy.

1,235,680. Device and method of canning beans. Anthony Greco, San Jose, Cal.

1,236,380. Confectionery. Claude E. Price, Spokane, Wash.

1,236,382. Process for preserving vegetables, fruits, and the like. Joseph von Epler, New York, N. Y.

1,236,405. Apparatus for treating fish. Francis D. Cleveland, Cambridge, Mass., assignor to William Underwood Co., Boston, Mass.

1,236,428. Process of leavening dough and batter. Abel M. Hamblet, Winchester, Mass.

1,236,505. Dough-rounding-up machine. Frank H. Van Houten, Jr., Fishkill-on-the-Hudson, N. Y., assignor to Dutchess Tool Co., same place.

1,236,555. Mold for forming pastes. Karl Gammel, Cleveland, Ohio, assignor to The Cleveland Macaroni Co., same place.

1,236,658. Process for producing pure flour. Samuel Baumann, New York, N. Y., assignor to Simon, Buhler & Baumann, same place.

1,236,690. Peeling process for fruit or vegetables. Melville E. Dunkley, Kalamazoo, Mich.

1,236,700. Food product. William B. Gere, Syracuse, N. Y., assignor to Merrill-Soule Co., same place.

1,236,825. Evaporating apparatus. Andrew A. Dunham, Bainbridge, N. Y., assignor to The Dry Milk Co.

1,236,831. Food compound. Angelo G. Fatica, Cleveland, Ohio.

Oleomargarine in Louisiana.

"This department is and always has been strongly opposed to deceptive and fraudulent practices. We feel, however, that there is no deception in selling colored oleomargarine if it is put up in standard cartons branded and sealed in such a manner that it may be easily distinguished from butter. The distribution of oleomargarine by manufacturers in tubs for bulk retail sale should be prohibited. This could be easily done under the supervision of the United States Internal Revenue Department.

"Great prejudices have been set up in the minds of the consuming public against oleomargarine because in the past unscrupulous manufacturers have attempted to pass it off for butter. When stringent methods were taken to stop this misrepresentation, the people at once looked with disfavor on oleomargarine.

"Under the present conditions existing in the production of oleomargarine, and in these times of the high cost of living, it would seem of advantage to the public to make use of this long discredited food product."

—From Louisiana State Board of Health Quarterly Bulletin, Volume VIII, No. 1.

Staff Correspondence

Washington, D. C.

According to an announcement made by Mr. C. J. Blanchard, Chief Statistician of the Reclamation Service, the Federal Government will establish cold storage plants in the west to conserve the potato and onion crops.

The offices of the Food Administration have been a scene of marked activity during the past month. Conferences are held daily with representative business men from all parts of the country with a view to having the administration of the new law rest as easily as possible on the business interests of the country.

LICENSES FOR EXPORTS.

The Export License Bureau is proceeding with the work of authorizing the shipment of commodities to our allies and keeping them, as far as possible, from falling into the hands of our enemies. The issuance of licenses was recently taken from under the control of the Department of Commerce by the President and put in charge of the Exports Administration Board, of which Vance McCormick is Chairman. The purpose of the change, officials explained, is to simplify procedure in granting export licenses. Under the new arrangement, the administrative board, which was originally formed to serve as an advisory body to the Exports Council, comprising the Secretaries of State, Commerce and Agriculture and the Food Administrator, is given unusual powers. The President's order will serve to make the Exports Council really the advisory board. Since the export control provision of the espionage act was put into operation more than a month ago, the administrative board has done much of the work of shaping an export policy. Its recommendations have gone to the President, who in turn directed the Department of Commerce to administer the regulations drawn from time to time. Members of the administrative board, it is said, have considered this system too cumbersome, and they suggested that the board itself carry out the regulations and issue licenses. The suggestion was put up to the Exports Council, which approved it unanimously. The administrative work will still be carried on through the Export License Bureau, the services of which have been extended to the administrative board by Secretary Redfield until the tangles are straightened out.

Application for a license for the shipment of articles mentioned in the President's proclamation should be made to the Bureau of Foreign and Domestic Commerce, Washington, D. C., or to any of the branches of that bureau in the following cities: New York, Boston, Chicago, St. Louis, New Orleans, San Francisco and Seattle. There are three forms of application blanks: one for shipments to our allies, one for shipments not to our allies, and another for shipments of certain materials, such as steel, iron, etc., no matter to whom made. The agents of the bureau in the cities named above have authority to issue permits in certain cases, and in other cases the application will have to be forwarded to Washington for action. Licenses granted will be good for sixty days and must be renewed at the end of that time.

CONSERVING WHEAT PRODUCTS.

The Council of National Defense has embarked upon a vigorous campaign to conserve the wheat supply of the Nation. This work has been prosecuted under the Commercial Economy Board, whose function it is to assist in the readjustment of commercial organization which the war makes necessary, rendering it easier for business houses to give up the men needed for military service and the industries vital to the conduct of the war. It has been concentrating its efforts chiefly on two campaigns, one to eliminate the return to wholesale bakers of unsold "stale" bread, the other to cut down the waste in the present over-developed delivery system of grocery, department and dry goods stores. Such recommendations as the board has made have all been based on a most searching study of both European experience and local conditions conducted by economic experts, and particular care has been taken to make sure that they would result in no demoralization of business. The board has received a most gratifying response from all parts of the country to its request for the elimination of the return of unsold bread, a large percentage of which was being converted into animal feed, and present reports indicate that the bakers throughout the nation, with the exception of a few scattered districts, have put the board's recommendations into effect. Very satisfactory results have also been secured in cutting down the number of deliveries in department and other retail stores, enabling the easy release of thousands of men and the conservation of much capital. These results have been secured through a general campaign of publicity, carried out through the press, through the state councils of defense, and through conferences with representatives of the business men affected, who have in turn assisted in focusing local public opinion on the problem.

NON-DELIVERED GOODS SHOULD BE CHEAPER.

In accordance with the policy outlined by Food Administrator Hoover, an attempt has been made by the Women's Committee of the Council of National Defense, of which Mrs. Newton D. Baker, the wife of the Secretary of War, is a member, and for whom she has been acting as "spokesman," to induce the merchants of Washington to give an allowance where the customers carry their own packages. This committee has also gone on record as favoring the restriction, or entire elimination, of the return privilege, as well as an extra payment charge where special delivery privileges are desired. Some objection has been made to the allowance proposition by the merchants, on the ground that it would discriminate between their customers. Mrs. Baker has pointed out that this would not be a discrimination, but would merely leave it optional with a customer to carry a package or pay for its delivery. At the present time, the matter is at a standstill, and other cities throughout the country which have taken up the question are waiting for the National Capital to show the lead.

SUGAR PRICE NEXT TO BE STANDARDIZED.

Mr. Hoover had a conference during the last week in August with a committee from the New York Coffee and Sugar Exchange, which recently stopped sugar futures trading at Mr. Hoover's request. The control of sugar dealings is to be taken up by the food administration after it has completed its program for supervising wheat trading and flour and bread manufacture. The members of the committee who saw Mr. Hoover were Henry Schaefer, William Bayne, Jr., L. S. Bache, E. L. Luder and Manuel E. Rionds.

Staff Correspondence

CANADIAN IMPORTS TO BE FULLY LABELED.

The Department of Commerce has announced that a bill recently introduced in the Canadian Parliament, which, if enacted into law, will go into effect January 1, 1918, requires the marking of the name of the packer on "every can, carton, bottle, bucket, barrel, wrapper, package or receptacle," as well as the name of the article contained, and the net weight in Canadian standard avoirdupois weight, or the measure in Canadian standard capacity measure, or the numerical content of the product contained and the month and year when the container was filled. It provides a penalty for non-compliance.

CONDITIONS ABROAD.

Sugar cards are to be distributed in England, according to an announcement by the Food Controller of Great Britain. These will allow one-half pound of sugar per head per week to the families in England, the total amount of sugar available probably being sufficient to give this average, but the government does not guarantee that this amount can be furnished. The object of the plan is to assure, as far as possible, equal division to all classes of whatever supplies are available. This allowance would amount to 26 pounds per annum per capita, against the average consumption in the United States of over 85 pounds.

Cheaper meat has been promised in England after September 1st, under the new sliding scale of prices to be paid for live cattle decided upon by the Food Comptroller as follows: For September, $17.76 per hundred pounds; for October, $17.28; for November and December, $16.08; and for January, $14.40. These prices will apply to cattle purchased to supply the army, and are probably similar to those to be paid for cattle for civil consumption. It is explained that the declining scale of prices is made for the protection of farmers who purchased feeding stock at high prices. Under the new prices, it is expected that beef will be 12 cents per pound cheaper by Christmas than at the present time. Sirloin steaks now selling in the United States at from 31 cents to 33 cents per pound have been bringing 44 cents to 46 cents per pound in London, with other meat prices in proportion.

CHANGES IN THE PERSONNEL.

A "volunteer," in the person of Mr. Arthur W. Fairchild, who has acquired an enviable reputation as an attorney in Wisconsin, took up his duties last month as a confidential adviser to Commissioner Davies of the Federal Trade Commission. Mr. Fairchild is to receive a salary of one dollar a year, and will assist Mr. Davies in his supervision of the commission's investigation of the meat packing industry. He will also act as chief assistant to Mr. Francis J. Heney, formerly of San Francisco and who is now general counsel for the commission in its food cost and distribution probe. Mr. Fairchild will give his immediate attention to the matter of supplying Wisconsin and other northwestern states with coal at reasonable prices, particularly during the present period of coal shortage in the Northwest.

Mr. E. Marvin Underwood, who has been an Assistant Attorney General in the Department of Justice since February, 1914, resigned his position effective August 31st. Mr. Underwood would not comment on the fact that it was reported that he would become general counsel for the Seaboard Air Line Railroad, saying that he would make known his plans later.

A Day's Food

What It Costs

This is not to urge a one-food diet. We need variety. It is to urge less meat, less costly food, and more of Quaker Oats. This premier grain may well supply one-fourth your daily diet.

The average person requires at least 2500 energy units daily. This is what that food would cost were it all one article.

Cost of 2,500 Energy Units

In Quaker Oats. 13c
In Ham 42c
In Round Steak 74c
In Mutton 52c
In Eggs 94c
In Milk 35c
In Broiled Chicken $1.73

The oat stands first among all grain foods in nutriment and balance. It stands first in flavor. It is a complete food, supplying everything we need. Its energizing value is proverbial.

Oats are plentiful and cheap. Wheat—the grain we must conserve—costs several times as much. Meats cost immensely more—as shown.

At breakfast, make Quaker Oats the chief dish. Then use Quaker Oats in bread and muffins, in pancakes, cookies, etc. You will be surprised at the delightful products. And every dollar's worth you use will, on the average, cut your table cost $3.

Quaker Oats

Exquisite Queen-Grain Flakes

Quaker Oats cost you no extra price. Yet they are flaked from queen grains only--just the big, plump, luscious oats. By discarding the small grains, we get but ten pounds from a bushel.

The result is a flavor which has made Quaker Oats the leading brand all the world over. A flavor which millions of oat lovers send over seas to get. It is at your command in any grocery if you ask for Quaker Oats. And it makes oat food delightful.

12c and 30c per package in the United States and Canada, except in Far West and South where high freights may prohibit

An Aluminum Cooker for $1.00

Made to our order, extra large and heavy, to cook Quaker Oats in the ideal way. Send us our trademarks—the picture of the Quaker—cut from the fronts of five Quaker Oats packages, or an affidavit showing the purchase of five packages of Quaker Oats. Send $1.00 with the trademarks or affidavit, and this ideal cooker will be sent to you by parcel post prepaid. We require the trademarks or affidavit as assurance that you are a user of Quaker Oats. The trademarks have no redemption value. This offer applies to United States and Canada. We supply only one cooker to a family.

Address The Quaker Oats Co., 1708 Railway Exchange, Chicago. 1718

QUALITY
IS NOT THE RESULT OF GUESS WORK

To attain a high standard of quality, guesswork must be eliminated in purchasing ingredients and in the operation of your factory. Your past experience has shown you the folly of gambling on the quality of the ingredients that enter into your finished product.

Victor Phosphate
FOR BAKING POWDER AND SELF RISING FLOUR
Never Varies in Strength or Purity
ALWAYS THE SAME

It has taken a good many years and a great deal of courage to develop VICTOR phosphate to its present standard of quality. Today it is the purest, most economical and efficient phosphate manufactured anywhere.

Victor Chemical Works
Chicago New York St. Louis

Nut Margarine

MADE OF NUTS AND MILK
FREE FROM ANIMAL FATS

THIS product is taxed and regulated the same as animal oleomargarine. We oppose the former and positively favor the latter. We want this product sold on its merits for just exactly what it is. We refuse to sell moonshiners. This product is sold only in one, two and five pound cartons. Our business has grown rapidly on new, progressive lines.

The Nucoa Butter Company
CHURNERS
Sales Department, 10 Bridge Street, New York

Staff Correspondence

The Department of Agriculture has announced the promotion of Mr. Floyd R. Harrison, of the District of Columbia, to assistant to Secretary Houston during the present emergency. Mr. Harrison entered the Department of Agriculture in 1906 as an employee in the appointment clerk's office, and advanced through various stages until he was appointed confidential clerk to the Secretary of Agriculture in August, 1914, and since May, 1915, he has been private secretary to the Secretary. Mr. Harrison F. Fitts, who has been confidential clerk to the secretary, has succeeded to the position vacated by Mr. Harrison.

Dr. William C. Fowler, who has for twenty-three years been connected with the Health Department of the District of Columbia, has been appointed successor to Dr. John L. Norris, who has until recently been Assistant Health Commissioner. Dr. Norris has joined the Medical Reserve Corps of the United States Army.

Illinois.

John B. Newman, Superintendent of the Division of Foods and Dairies of the Illinois Department of Agriculture, has recently been conducting a state-wide search for bad eggs, prosecutions of merchants and dealers found guilty of violating the egg laws now being under way. This campaign is to be regarded as a food conservation measure as well as one affording much needed protection to the consumer. As Superintendent Newman points out, compliance with the egg candling regulations will tend to check unnecessary waste of food. In the vicinity of Pana, Inspectors Marley and Thompson secured fifteen convictions of merchants, hucksters and others charged with violating the food laws. Nine were prosecuted for offering bad eggs for sale and the others for failure properly to clean and sterilize milk, cream and ice cream cans. Eleven convictions of dealers offering bad eggs for sale were obtained by Inspector Kennard in Gallatin, White and Saline counties.

Superintendent Newman has also issued an edict to the effect that unwashed, insanitary and neglected milk cans will not be tolerated in Illinois. Inspectors have been instructed to watch for all milk, cream and ice cream cans returned in an insanitary condition and to proceed against the offenders to the full extent of the law. As in the case of bad eggs this measure is in the interest of conservation as well as protection. The first prosecution as a result of the clean milk can campaign took place at Mendota, where the owner of an unwashed milk can was fined $15 and costs. Prosecution resulting in a fine was also conducted in El Paso, and other prosecutions are contemplated.

Charles Adkins, Director of the Illinois Department of Agriculture, is making an effort to have the farmers of Illinois take more interest in the raising of sheep. As he pointed out in a recent address, if only one sheep were placed on every farm in Illinois it would mean an addition of 250,000 sheep to the country's supply. Director Adkins is making arrangements to place ewe lambs with all farmers who are willing to join this movement.

Mr. R. G. Gould, editor of THE AMERICAN FOOD JOURNAL, has been asked to serve on the Food Distribution Advisory Committee of the Food, Fuel and Conservation Committee of the State Council of Defense.

Staff Correspondence

Indiana.

H. E. Barnard, State Food and Drug Commissioner, has been appointed Federal Food Commissioner as well. This is the only instance in which a state food commissioner has been made federal food commissioner. C. V. Stainsby is now a food inspector of the Indiana Department.

Kansas.

Dr. S. J. Crumbine, Secretary of the State Board of Health, has recently been made a member of the State Appeal Board.

Massachusetts.

Further and important readjustment of relations between the recently appointed food administrator, Mr. Henry B. Endicott, and the original state food production and conservation committee, has just been accomplished, with the probable consequence of a largely increased usefulness on the part of the food administrator and his advisory board. The readjustment consists in the restoration of the food committee to its original integrity as a distinct organization, but transferred to the food administrator's department from its former place among the working committees of the state committee on public safety. Under the new working agreement, the responsibilities of the food administrator's board and of the food production committee (which now become co-ordinate divisions of the administrator's department) are to be clearly defined and apportioned.

The new arrangement redeems what appeared to be—as intimated in these columns last week—a serious mistake, likely to produce confusion and disorganization among the county and community food workers and to result in the neglect of exceedingly important parts of the food campaign as a whole. It not only restores the original committee to its place of influence, but adds to the food administrator's department direct representatives of the farming interests, which had been overlooked, and representatives of the eight most important state or volunteer agricultural agencies in Massachusetts. A direct consequence of this will be the resumption of plans for systematizing and maintaining production in the coming year. It is also expected, though not yet determined, that questions concerning the distribution and marketing of crops, with such other problems of transportation, supply and prices as primarily affect agriculture, will be assigned to the food production committee.

In brief, the status of the committee has been made more definite than it has been at any time before, thus protecting its dependent county and local organizations and assuming more effective carrying out of its policies; and at the same time the food administration as a whole has been unified and strengthened. With the adoption of this plan, President K. L. Butterfield, of the Agricultural College, has signified his continuance as chairman of the food committee. Mr. John D. Willard, who as secretary of both the food production committee and of the food administrator's board, was in a position to appreciate the importance of the two organizations to each other, had a considerable part in bringing about this needed and satisfactory adjustment.

Chief among the activities in the food campaign during August was the development of the plan,

EQUAL to the PRODUCTS
of an immaculate
HOME KITCHEN

Food products have never been so closely analyzed by consumers as is being done at the present time, while *conservation* has stimulated home production of various kinds of preserved fruits and vegetables, teaching lessons of real value and educating consumers to a more discriminating sense of quality.

This is most commendable, but we can assure all consumers of

RICHELIEU
FERNDELL and BATAVIA
Brands of
PURE FOOD PRODUCTS

that there is nothing produced in the very best regulated home kitchen that can show any superiority over these goods.

They are prepared from fresh fruits and vegetables by the most skillful and sanitary methods. And, most important to the consumer, constant diligence is exercised to keep their wholesome goodness dependably uniform.

Sprague, Warner & Company
CHICAGO

Sealed with *WAXED PAPER!*

The correct combination of pasteboard, parchment and waxed paper will result in the ideal container for scores of concerns that think "nothing will do but tin cans."

You can get a paper container, as satisfactory as tin, at a price economy, if yours is a dry or only slightly moist food product. Put your packing problems up to us. Our HOW department will willingly help you solve them.

**KALAMAZOO VEGETABLE
PARCHMENT COMPANY**
KALAMAZOO, MICHIGAN
Parchment and Waxed Papers

WM. J. MOXLEY'S

"SPECIAL"

OLEOMARGARINE

The Taste Is the Test

Where Quality and Economy Meet

Gives better satisfaction than 75 per cent of butter used. Cost one-third less. Try it and be convinced. Order a package from your dealer.

Churned by
WM. J. MOXLEY, Inc., Chicago

Staff Correspondence

already set in operation by the food committee before its resignation, of publishing daily reports of market supplies and prices. As a consequence of these reports, consumption of perishable products has been so directed as to absorb the supply with little or no wastage, and to maintain better prices for the producer. This has brought about a much more friendly and cooperative attitude among the market gardeners, whose irritation we reported last month. On the question of oversupply, an authority in position to have official information declares his disbelief that any serious market glut has existed this summer. Retail prices, he says, have sometimes amounted to 375 per cent of the wholesale prices. "The retailers have made themselves into a dam that stops the flow of products between producer and consumer. Most retailers still do business on the wornout method of handling as little as possible, and charging higher prices as their means of profit. They must be educated to the modern business standards—a larger volume of trade at a smaller margin of profit."

Establishment of public markets and market exchanges has been extensive, and even so late in the season is still going on. The campaign of the New England peach growers to stimulate consumption of the large crop apparently is succeeding. The amount of canning done has undoubtedly been very large, both in the home and in the community canning centers, but exact figures on this, and on the amount of dried products, can not be given until the food census is taken. Complaints of the spoiling of products in the can are frequent. Prof. Charles E. Marshall, of the Agricultural College's microbiological department is planning an investigation to determine the amount of heat required for sterilization and the time and other factors involved in its application—matters about which there is much dispute and no scientifically established data. Commercial canners are ready to finance his investigations but it is hoped that provision can be made for determining these facts for glass containers, as well as for metal, in order that the home, as well as the commercial canner, can be safeguarded from such losses.

"Wheatless week" was observed toward the middle of August, the estimated saving in flour running very high. In some quarters it was thought that better results would come from repeated "wheatless days," as a week of deprivation proves tedious to many who would not mind a day at a time. It was also reported that supplies of substitutes in some instances gave out at the end of the first or second day. Bread prices remain high, but one of the most widely read newspapers is conducting a campaign for cheaper bread and the food administrator will, it is thought, take the first good occasion to move in this matter.

Uncolored oleomargarine at 32 cents is selling well under demonstration methods; phials of vegetable coloring matter are supplied free. The heavy increase in the prices of milk and dairy products is felt, and some lessening of consumption is certain. Prophecy runs that a growing feeling against the discriminative tax on oleomargarine will develop as dairy and creamery prices mount.

Missouri.

Sanitation is to the fore in Missouri now that the clean can and bottle act, passed by the Legislature last

BEE BRAND—The Standard
of Purity and Quality in Spice

A leading characteristic of Bee Brand Spice is the freedom from grit and particles of foreign matter.

The unusual degree of cleanliness to be found in McCormick & Co.'s spices (packaged and bulk) is due to intensive cleaning *in our mills.*

Samples sent to Trade Factors upon request

McCORMICK & CO., Inc.
Importers and Grinders
BALTIMORE, MD.

REGISTERED TRADE MARK

winter, is in force. Commissioner Barnhouse has recently renewed the ruling of the former Missouri commissioner as to bleached flour. R. E. L. Mars has been appointed Deputy Commissioner vice G. B. Cook.

Nevada.

At the last session of the Nevada Legislature several bills were passed relating to the food and drug laws along dairy lines. This new legislation, together with the enactment of the so-called pasteurization bill which requires that all cream used in the manufacture of butter and ice cream must be pasteurized, increases the work of Commissioner Dinsmore's department to a considerable extent.

Mr. A. M. Jackson, formerly chemist for the department, has resigned and is now a first lieutenant in the coast artillery branch of the army, being stationed at Fort Hancock, N. J. Mr. W. B. Adams has been made assistant chemist to fill the place made vacant by the resignation of Mr. Jackson. Mr. M. B. Kennedy has been appointed dairy inspector, his duties commencing September 1st.

New York.

The State Food Control bill, enacted at the extraordinary session of the legislature, was signed by Gov. Whitman on the 29th of August.

By this new law necessities of life, adjudged to be hoarded, may be disposed of by sale by the Food Commission and equitably distributed according to the direction of the Supreme Court, to whom the hoarding case shall be referred; or the commission may revoke the charter of the corporation doing the hoarding, or seize the necessities, cause their value to be appraised and pay the value to the person entitled to it. The commission will also have the power to settle and adjust hoarding controversies.

The commission can hold its own court and may also avail itself of the facilities of the new Department of Farms and Markets, particularly in connection with the inventory of food and seeds in the state which is to be made to aid the government of the United States.

By the terms of the new laws, co-operation with the federal food administration is provided for, the New York State Food Supply Commission is done away with, municipal storage and sale of food is granted, more public markets in smaller cities will be permitted and the three food commissioners appointed under the new act may administer the most drastic regulation of food supplies ever placed on the statute books of this state.

The law makes it unlawful, if necessaries are "held, contracted for or arranged for by any person in a quantity in excess of his reasonable requirements for use or consumption by himself and dependents for a reasonable time." The farmer is secure from all accusations of hoarding under the new law. The law says on this subject that "any accumulating or withholding by any farmer or gardener, co-operative association of farmers or gardeners, including live-stock farmers and fruit growers, or any other person, of the products of any farm, garden or other land owned, leased or cultivated by him or by the members of any such association shall not be deemed to be hoarding within the meaning of this act."

The Commission may avail itself of the facilities of the new Department of Farms and Markets, particu-

Purity of essential ingredients.
Constant U. S. Government Supervision
Strict compliance with all State Pure Food Laws
Rigid sanitary rules in every step of production.

These rules are fully appreciated by
MORRIS & COMPANY,
which sincerely endeavors to merit the confidence of the ever-increasing patronage given their choice oleomargarine
"MARIGOLD"
The National Bread Spread.

MORRIS & COMPANY
E. St. Louis Chicago Kansas City
Omaha, S. S. St. Joseph Oklahoma City
Branches in nearly all large cities

TIN and FIBRE CONTAINERS
FOR
Foods, Drugs, Oils

Infinite Variety
Large Capacities
Prompt Deliveries

American Can Company
Chicago New York San Francisco
WITH OFFICES IN ALL LARGE CITIES

Staff Correspondence

larly in connection with an inventory of the food and seeds in the state, which is to be made to aid the federal government.

One of the broadest provisions in the bill has to do with licensing authority conferred on the Commission whenever the Commission shall find it in the public interest in order to carry into effect the purposes of this act. That is, licensing of the manufacture, storage and distribution of necessities of life, "farmers exempt." Under the licensing system no business specified by the Commission could continue operation without a state license. The Commission may assume the authority to tell a man what system of accounts he shall maintain under the license, what auditing, what reports he shall make to the Commission regarding the operation of his business. The licensee shall submit to inspection of his affairs by "authorized agents."

If the licensed manufacturer is "unjust or unreasonable, or discriminatory or unfair, or wasteful," he stands the chance of being ordered to discontinue such improper practices or be brought before the court, wherein the Commission's findings shall be prima facie evidence. In this connection it is "provided that this legislation shall not apply" to farmers, farmers' associations, carriers and retailers—"persons whose gross sales do not exceed one hundred thousand dollars per annum."

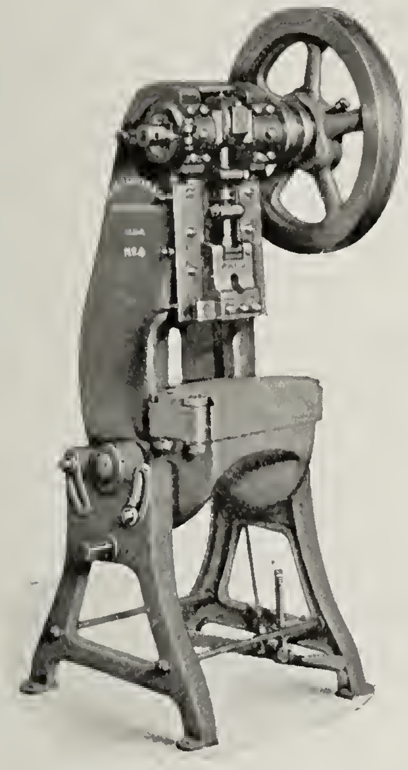
If this licensing system does not take care of the food slackers, the Commission takes on more power in the next section of the bill, so that it may "enact and publish such rule or rules as in its judgment will provide for the correction or discontinuance of such practices." There may be advisory committees called in to assist the Commission in a way similar to the self-government plan which Food Administrator Hoover has begun—inviting men from the different lines of industry to assist in the regulation of those industries.

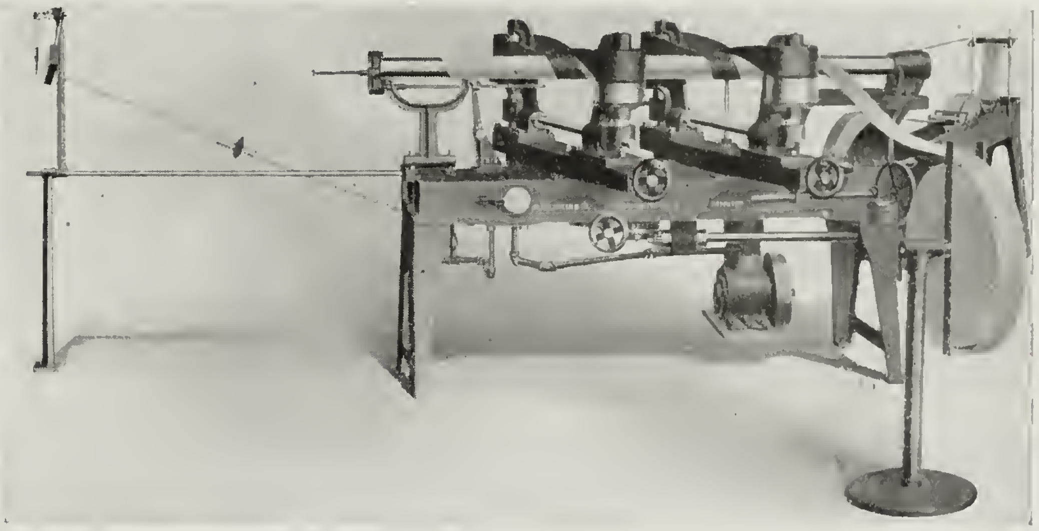
Other powers of the Commission compel carriers to give preference to transportation of necessaries, regulate the destruction of food by public health officers, permit the sale of fish and game in co-operation with the Conservation Commission and further attend to conservation by directing methods of state distribution. The Commission may accept any delegation of federal authority. It is the intention, according to the bill, to interpret state legislation so as not to conflict with federal aims, and to co-operate with municipal organizations and officers.

Included in the act are important amendments to the Farms and Markets law, providing public markets for towns having over 10,000 population, specifying the method of administration of the markets and the amounts which the state and cities shall contribute toward their maintenance.

This new law is intended as an emergency act to prevail during the progress of the war. The law may be terminated by the governor of New York as soon as it is felt that the emergency due to the war is over, by proclamation. Even if the governor should fail to take this action within one year after the treaty of peace between the two warring countries had been signed, the act is automatically nullified under the laws of the state of New York. Statements will be made by the Commission, informing the public as to the food status. Weekly reports will be published, giving the

LEFFLER SPECIAL MACHINERY
Paper Can Machinery
Automatic Tin Can Machinery
Sanitary Can Machinery
Metal Package Machinery
Soldering Machinery
CATALOGUES ON REQUEST
Chas. Leffler & Co.
Clymer Street Kent Avenue
BROOKLYN, N. Y.





wholesale and retail prices of foodstuffs. The public is asked to aid the Commission by giving information whenever it is aware of instances where men are hoarding food or speculating in the necessities of life.

As the three Food Commissioners to administer the law Gov. Whitman sent to the Senate the names of George W. Perkins of New York, Jacob Gould Schurman, president of Cornell University, Ithaca, and Charles Wieting, former state commissioner of agriculture, of Cobleskill. The appointment of Mr. Perkins was not confirmed. An alleged oversight in legislative procedure on the part of the Senate has left open a way by which the governor may, if he so desires, again name Mr. Perkins for the office when the next session of the legislature is called on September 25.

Ohio.

Late in August the newspapers ran reports to the effect that because of a quarrel over prices, the milk producers in northeastern Ohio were throwing milk away rather than to sell it at the prices offered them. Thomas C. Gault, Chief of the Dairy and Food Division of the Ohio Board of Agriculture, states that his view is somewhat at variance with that of the newspaper men. According to Mr. Gault, the producers of that community who sold milk to Pittsburgh were contracted on a basis by which they received for milk testing 3.5 per cent butter fat $2.40 per hundredweight during May. For June and July they received $2.10 per hundredweight. Their contracts expired August 1st and they refused to contract again on the same basis, but asked for a basis of $2.80 per hundredweight for 3.0 per cent milk, which they failed to get. They insisted upon this basis and took the position that they would keep the milk at home rather than accept the dealers' terms.

As to their wasting whole milk, Mr. Gault states that he has been unable to get any evidence in the affirmative. However, they are, he advises, selling to condenseries on the basis of $2.90 per hundredweight, some are selling to cheese factories on nearly the same basis, and others are skimming and selling the cream to ice cream factories and feeding the skimmed milk to hogs and calves. In a few instances, where the milk producers had no stock to which it could be fed, the skimmed milk was thrown away. Mr. Gault states further that efficiency men who have been operating throughout the different parts of Ohio claim that at less than $3.40 per hundredweight the producers are working at a loss. In other words, that if they could sell their grain, hay, etc., on the present market for these commodities they would have more money than if they manufactured it into milk, or if they went on the open market and purchased the raw materials for their milk factories they would lose money every day they operated. If his information is authentic, Mr. Gault feels that his sympathy must be with the producer, since it does not seem fair to insist that the farmers shall operate their milk factories at a loss for the benefit of the general public.

The Cold Storage Act passed at a recent session of the Ohio Legislature, is now in force. This act was described in full in the April issue of the JOURNAL.

Oregon.

Commissioner Mickle of Oregon is now able to go after foods dishonestly advertised with more assur-

Carnation Milk

Is Most Convenient

You can keep a supply of Carnation Milk on your pantry shelves or in your kitchen cabinet—ready for use at all times.

Carnation Milk is just clean, sweet, pure cows' milk, reduced by evaporation to the consistency of cream, hermetically sealed in cans and sterilized.

Carnation Milk is the ideal home milk supply. Use it in your cooking and baking. Use it for drinking. Use it for every milk purpose.

Free Recipe Book

"The Story of Carnation Milk," our free, illustrated recipe book, contains over 100 recipes for plain and fancy dishes. Sent free to *you* upon request.
Carnation Milk Products Company,
965 Stuart Building, Seattle, Wash.

Remember—Your grocer has it!

"From Contented Cows"

WILSON & CO.
MAJESTIC
HAM

The Wilson Label Protects Your Table

THE W-shaped Wilson label bearing the symbol WILSON & CO —with the "big red W" trade-mark—says to you: "This food product has been carefully selected, skilfully prepared, and handled with the *respect* due that which you are asked to buy and eat.

"This mark WILSON & CO. your guarantee"

Chicago, New York, Oklahoma City, Kansas City, Los Angeles
The U. S. Government certifies to the purity and wholesomeness of Wilson & Co.'s products. Look for the Government Inspection Mark

Staff Correspondence

ance of success than has been the case in the past. This is due to a law governing misleading advertisements enacted by the recent legislature. In connection with the Ad Club, the Hygiene Society and other bodies Commissioner Mickle is starting an investigation of patent medicines and similar products.

W. B. Duncan of the department has resigned to take up the management of his Oregon farm. Professor C. A. Jewell has been appointed to the post of chief deputy. Mr. L. B. Ziemer of the department has been invited to judge butter and cheese at the state fair and at contests about the state. Mr. Ziemer is usually invited to address the dairy students at the State Agricultural College each winter.

The Pacific National Dairy Show for 1917 will be held in Portland from November 16th to 23d, inclusive. The directors of this organization are planning for a very large show and claim that there is much interest in the Pacific Northwest in dairy stock breeding and in connection therewith.

Rhode Island.

Frank A. Jackson, Chairman of the Food and Drug Commission, has been made President of the Rhode Island College of Pharmacy. Commissioner Jackson's department is active in the food conservation movement working in conjunction with the New England officials who meet from time to time in Boston.

Tennessee.

Commissioner Harry L. Eskew recently promulgated Decision No. 515-A, which reads as follows:

"PRESERVATIVES. (Decision June 13, 1913.)

"Section 3, Subsection 5, of the Tennessee Food and Drugs Act, provides that a food shall be deemed to be adulterated 'if it contain any added poisonous or other added deleterious ingredient, which may render such article injurious to health.'

"Salicylic acid, a poison, is the so-called 'canning acid' which has been so largely sold in the State of Tennessee for adding to canned goods of various sorts, as a preservative.

"All dealers are hereby notified that the sale of any so-called 'canning acid' which is poisonous will be construed by this department to be a violation of above law. All dealers should take notice of this ruling and be governed accordingly.

"The use of chemical preservatives with the exception of benzoate of soda and sulphur dioxide on fruits is forbidden.

"Benzoate of soda may be used in proportion not greater than one-tenth of one per cent as a preservative, provided its presence is distinctly stated upon label.

"A person or firm is hereby warned that a non-observance of this Decision will be construed by this Department as a violation of above law."

Basing his action upon Sections 1 and 2 of Chapter 473, Tennessee Acts of 1909, which read in part as follows: "that every building, room, basement or cellar used for the preparation, sale or distribution of any food shall be conducted with strict regard to the influence of such condition upon the purity and wholesomeness of the food therein," and (Sec. 2) "that receptacles and implements of every establishment or place where food is sold or distributed shall at no time be kept in an unclean, unhealthful or unsanitary condition, and for the purpose of this act, unclean,

A Complete Line of Trade-Marked Protective Papers

including Glassine, Parchmoid, Vegetable Parchment and Imitation Parchment is manufactured and sold by the Diamond State Fibre Company, the largest manufacturers of protective parchment papers in America.

This line is sold under the trade name of DIAMOND-F PROTEX PAPERS which is plainly marked on every package.

DIAMOND-F PROTEX PAPERS are odorless and free from wax or other greasy or foreign materials. They are relatively airproof, greaseproof, germproof and acidproof and are used in many instances for packages instead of tin.

Remember the name—DIAMOND-F PROTEX PAPERS and see that this identifying mark is on every package of parchment paper you buy.

DIAMOND-F
PROTEX PAPERS

DIAMOND STATE FIBRE COMPANY
Bridgeport, Pennsylvania
(near Philadelphia)

unhealthful and unsanitary condition shall be deemed to exist if food in the process of preparation, sale or distribution is not securely protected from all foreign or injurious contamination," and realizing that lax and ineffective methods of washing glasses, dishes, etc., have been demonstrated to be a prolific source of distribution and spread of communicable diseases among patrons of food and drink handling establishments, Food and Drug Commissioner Harry L. Eskew of Tennessee recently announced that on and after November 1, 1917, one of the following procedures for the cleaning of glasses, dishes, spoons and all receptacles and implements used in serving food and drinks to the general public will be required by his department.

A. Hand Washing.

Receptacles and implements used in serving food when washed by hand shall first be washed in a strong hot solution of soap or some other material equally cleansing, using a stiff brush or cloth and rubbing all parts of same until cleaned thoroughly; then after rinsing be boiled in clean water for a period of not less than five minutes; then transferred to a clean place, protected from dust, dirt, flies and other injurious contamination and allowed to dry.

B. Mechanical Washers.

When mechanical washers are used all implements and receptacles shall be fully immersed in a strong boiling solution of soap or some other material equally cleansing which is sufficiently agitated to thoroughly clean same in the time used; removed therefrom and fully immersed in boiling clean water for a period of five minutes; and then removed to a clean place protected from dust, dirt, flies and other injurious contamination and allowed to dry.

C. Live Steam and Dry Heat.

In lieu of boiling in water for five minutes in either of the above processes, implements and receptacles may be treated with live steam or dry heat provided that in case live steam is used, the implements and receptacles must be placed in a closed container and treated with live steam under at least ten pounds pressure for at least fifteen minutes, and in case dry heat is used the implements and receptacles be subjected to a temperature of at least 356 degrees Fahrenheit for at least one hour.

D. Other Processes.

Other recognized processes if as effective as described in A, B or C, may be used but no substitute procedure will be recognized unless equally effective.

Attention is called to the fact that the foregoing procedures are to be used in cleaning all implements and receptacles used in serving food and that the term food as used in Chapter 473, Acts of 1909, includes all articles used as food, drink and confectionery. Consequently this especially applies to the cleaning of implements and receptacles used in serving food, milk, water, etc., at restaurants and hotels; and to those used in serving drinks, ice cream, etc., at soda fountains, soft drink stands and ice cream stands.

PAPER SINGLE SERVICE CONTAINERS.

When paper receptacles are used in serving food and drinks, the same shall be kept in a sanitary manner, protected from dust, dirt, flies and other injurious contamination and be used only once.

It is urged that one of these processes of effective cleaning be adopted at once, but proprietors of establishments affected will be given a reasonable time in which to provide the necessary facilities. However, the department will require compliance from and after November 1, 1917.

During June Commissioner Eskew's department devoted inspection work equivalent to 108 days to food-handling establishments in Nashville and Chattanooga. This is an average of 4.1 men in the field for each of the 26 working days. Of the 2,228 total establish-

Rumford
THE WHOLESOME
BAKING POWDER

Worthy of the highest commendation as a healthful, efficient and economical leavening agent.

The acid ingredient in Rumford is the genuine Prof, Horsford's phosphate in its improved form.

It restores phosphatic elements equivalent to those which fine wheat flour loses in the milling.

A Perfect Baking Powder.

F.70 4.17

E. PRITCHARD

Packer and Manufacturer
of the Finest

"EDDYS"
BRAND

Canned Foods,
Jellies, Preserves,
Plum Pudding,
Sauces, Table Delicacies,

and

PRIDE OF THE FARM
Tomato Catsup

Bridgeton, N. J.
and 331 Spring St., New York

Staff Correspondence

ments visited, 917 were passed as satisfactory and 1,319 were not in good condition and sanitary orders in connection therewith were issued. Food amounting to 500 pounds, consisting largely of dried and canned fruit, was condemned.

Texas.

J. K. Brim, late of the Department, has been appointed captain in the Texas National Guard.

Virginia.

As an evidence of his interest in sanitary retailing of foodstuffs Commissioner Purcell has recently issued a regulation requiring the sterilization of fountain and restaurant glasses, utensils and similar things.

The "Lassies" case is once more in evidence, the Corn Products Refining Company having asked an injunction to restrain the enforcement of the Virginia requirements as to the labels used upon that form of syrup.

Commissioner Purcell, having recently been made a member of the State Agricultural Council of Safety, is waging a systematic campaign for conservation by means of bulletins and similar matter.

A newly created division in the Virginia Department of Agriculture is that devoted to home economics.

Wisconsin.

Commissioner George J. Weigle maintains that the newspaper reports in regard to glue found in Wisconsin ice cream are an exaggeration of the facts. Commissioner Weigle ascertained from outside the state that glue, masquerading as gelatine, was being shipped into Wisconsin from Chicago, a bit of information which caused him to notify all ice cream makers in his state, and also those who manufacture gum drops and marshmallows, to exercise caution when buying gelatine.

Report of Cold Storage Holdings, August 1, 1917.

American Cheese.

Reports from 340 cold storages show that their rooms contained 61,536,889 pounds of American cheese, while on July 1, 365 storages reported 31,933,953 pounds.

Creamery Butter.

Reports from 310 cold storages show that their rooms contain 85,540,972 pounds of creamery butter, while on July 1, 323 storages reported 47,846,514 pounds.

Eggs.

Reports from 358 cold storages show that their rooms contain 6,425,810 cases of eggs, while on July 1, 418 storages reported 6,276,430 cases.

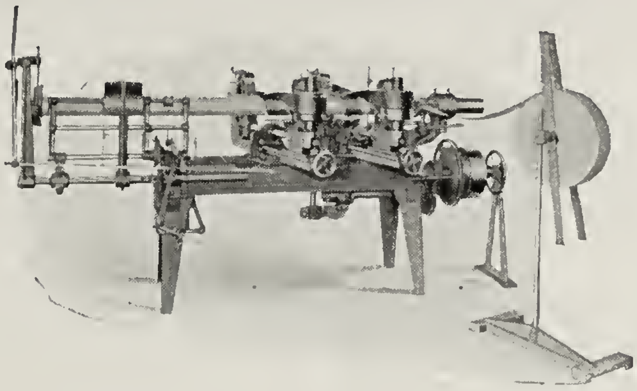
Frozen Eggs.

Reports from 132 cold storages show that their rooms contain a total of 4,872,286 pounds of frozen eggs, while on July 1, 147 storages reported 12,743,381 pounds.

Frozen and Cured Meats.

The total stocks of frozen beef reported by 265 storages on August 1, 1917, amounted to 112,442,629 pounds, while the total stocks reported by 286 storages on July 1, 1917, amounted to 106,738,229 pounds. The total stocks of cured beef reported by 278 storages on August 1, 1917, amounted to 41,557,780 pounds, while the total stocks reported by 309 storages on July 1, 1917, amounted to 35,283,268 pounds. The

ROUND PAPER CAN
MACHINERY



SAMUEL M. LANGSTON COMPANY
CAMDEN, N. J., U. S. A.
CANADIAN FAIRBANKS-MORSE CO., Agents for Canada

total stocks of lamb and mutton reported by 147 storages on August 1, 1917, amounted to 3,597,385 pounds, while the total stocks reported by 147 storages on July 1, 1917, amounted to 4,035,540 pounds. The total stocks of frozen pork reported by 253 storages on August 1, 1917, amounted to 93,684,410 pounds, while the total stocks reported by 276 storages on July 1, 1917, amounted to 92,981,717 pounds. The total stocks of dry salt pork reported by 368 storages on August 1, 1917, amounted to 226,062,210 pounds, while the total stocks reported by 409 storages on July 1, 1917, amounted to 217,527,873 pounds. The total stocks of sweet pickled pork reported by 456 storages on August 1, 1917, amounted to 389,661,187 pounds, while the total stocks reported by 499 storages on July 1, 1917, amounted to 412,328,689 pounds. The total stocks of lard reported by 456 storages on August 1, 1917, amounted to 109,528,373 pounds, while the total stock reported by 509 storages on July 1, 1917, amounted to 89,666,874 pounds.

Frozen Poultry.

The total stocks of frozen poultry reported by 210 storages on August 1, 1917, amounted to 48,588,865 pounds, while the total stocks reported on July 1, 1917, amounted to 55,243,568. The total stocks of broilers reported by 116 storages on August 1, 1917, amounted to 2,885,229 pounds, while the total stocks reported by 126 storages on July 1, 1917, amounted to 3,769,671 pounds. The total stocks of roasters reported by 112 storages on August 1, 1917, amounted to 4,657,895 pounds, while the total stocks reported by 123 storages on July 1, 1917, amounted to 5,231,397 pounds. The total stocks of fowls reported by 124 storages on August 1, 1917, amounted to 1,822,090 pounds, while the total stocks reported by 133 storages on July 1, 1917, amounted to 2,033,018 pounds. The total stocks of turkeys reported by 119 storages on August 1, 1917, amounted to 3,343,729 pounds, while the total stocks reported by 129 storages on July 1, 1917, amounted to 3,639,182 pounds. The total stocks of miscellaneous poultry reported by 171 storages on August 1, 1917, amounted to 35,879,922 pounds, while the total stocks reported by 184 storages on July 1, 1917, amounted to 40,570,300 pounds. All poultry holdings not segregated into broilers, roasters, fowls and turkeys have been placed in the miscellaneous group.

Soy Beans a Cheap and Nourishing Food.

Soy beans, introduced into the United States more than a hundred years ago primarily for use as a forage crop, are in reality one of the most nutritious of the legumes when used as human food, according to specialists of the U. S. Department of Agriculture. These beans have been used for centuries as a staple article of diet in China and Japan and are coming to be used more generally in this country as consumers learn their food value and palatability. Since they furnish protein, which contains nitrogen for muscle building, and valuable fat, they are especially important to turn to as an emergency addition to the usual dietary or as substitutes for other foods furnishing protein and fat. Moreover, the fact that they contain no starch makes them valuable for invalids who can not eat starchy foods. These beans may be grown easily in practically all sections of the country where corn is grown and give heavier yields than most other beans.

Soy beans have been so important for other purposes that until recently they have attracted little attention for food

WARD'S
TIP-TOP
BREAD

is bread you can eat with a sense of safety because it is pure, clean and the standard of quality wherever sold.

It is pure, because only the highest grade bread making materials which money can buy are used in making it and the process under which it is made is the most advanced and scientific known to the baking industry.

WARD'S TIP-TOP BREAD is Clean because it is made in bakeries which are models of bread-making cleanliness. Every loaf is wrapped in waxed paper by MACHINE.

Hence, when you buy it you are guaranteed these three food manufacturing virtues—Quality, Purity and Cleanliness.

WARD BAKING COMPANY

THERE IS
CLEANLINESS, HEALTH
INSURANCE, ECONOMY
AND CONVENIENCE IN

Our PET
BRAND
Evaporated
Milk

The Standard of the World

Wins and Holds Trade on account of its Superior Quality

PREPARED BY
Helvetia Milk Condensing Co.
HIGHLAND, ILLINOIS
ORIGINATORS OF EVAPORATED MILK

purposes in this country. They are now coming into their own for that purpose, however, and the acreage of soy beans has increased steadily in recent years. The dried beans may be purchased now in a number of markets in various parts of the country, often under the name of togo beans, and should, with the increased acreage of the coming season, be more generally available. Soy-bean meal, a by-product of oil making, is a valuable food and no doubt will come into more general use with the increased production of soy beans.

Where dried soy beans are available they may be baked with or without pork, like navy and other beans. They should be soaked over night and should be cooked longer than other kinds of beans. The cooking may be done economically in a fireless cooker of the sort provided with heating stones or plates; or on the ledge of the fire box inside the furnace if the house happens to be heated with one of this type.

Dried soy beans have been canned in considerable quantities during the past season, baked with pork, and are on sale in this form in numerous markets. Canned green soy beans, which may be compared with lima beans, also are on the market in some sections of the country. Both these canned products yield as high a proportion of energy and a higher proportion of protein than the canned beans with which they are most closely comparable, and so are more nourishing. Both are produced and handled usually at a lower cost than other beans and should, therefore, be obtainable at lower prices.

The Economy of the Larger Loaf of Bread.

During the past year the bakers of the country have practically succeeded in taking the old five cent loaf of bread off the market, and in many cities the ten cent loaf is giving way before the fifteen and twenty cent loaf. Having finally convinced the housewife that there is nothing in the Constitution that says the price of bread must be five cents, they are following up their advantage by urging the economy of still larger and more expensive loaves. That the fifteen cent loaf does make possible substantial economies to the baker was pointed out by Wallace D. White at the convention of the bakers of the Potomac states. He said, in part:

"First—A saving is effected in labor connected with the baking department, as it costs very little more to handle a hundred 15 or 20 cent loaves than it would a hundred 10 or 15 cent loaves.

"Second—The cost of wrapping labor. Taking a 10-cent loaf as the basis at a cost of 100 per cent, a 15-cent loaf would cost approximately 75 per cent and a 20-cent loaf only 50 per cent for wrapping labor. The operation is the same whether a 10, 15 or 20 cent loaf is handled. Again, a larger loaf will require less paper in proportion—an additional economy.

"Third—Reduction in delivery costs. A salesman should handle 100 large loaves more quickly than double the amount in smaller counts, and likewise the middleman who sells the bread effects a saving in time; and time is money.

"Fourth—A baker making small loaves not only requires more help but also requires more bread pans, racks, etc., as well as more proofing room. The larger number of bread pans requires a greater amount of lard to grease the pans, which represents additional waste. More oven space is needed, as the capacity of an oven is not as great in pounds of dough in small loaves as it is in the large ones. Again, as an oven can accommodate more pounds of bread to bake in one run where the larger loaves are manufactured, the loaves, in order to be thoroughly baked, will admit the use of a lower temperature by at least 20 degrees, thus baking more slowly, more thoroughly, and assuring a well-baked and better product.

"Fifth—It must be remembered that the larger loaf is of better keeping quality. The larger loaf will keep its flavor a longer time and will become stale less rapidly, thereby insuring the edibility of the bread for a longer period, producing less waste in the home. Furthermore, a larger loaf requires less fermentation, thereby retaining more of the desirable elements in the dough, increasing the yield to some extent at least, and, what is most important, it is a more nutritious food."

BAKERS—

HELP WIN THE WAR

Bakers—do your duty to your country. Your immediate service to the nation is vitally essential. For the daily bread of millions of Americans and all our European Allies depends on you.

There is not enough wheat for all to eat. You must do your part toward conserving it. There is but one logical, practical and profitable way. Expand the wheat supply by the use of Corn Flour as a baking admixture with wheat flour. In England, France and Italy the Governments long ago made such mixing compulsory.

Corn Flour is made by a milling process similar to wheat flour. The bran and germ are removed and put into feeds. The keeping qualities are the same as wheat flour and, pound for pound, Corn Flour contains the same nourishing properties.

We urge the **admixture by the baker** of from 15% to 25% Corn Flour with wheat flour, in his baking products.

It means no sacrifice of quality. Bread made from this combination of wheat and Corn flours will keep fresh and moist longer and will produce a crisper, tastier loaf. You will give your customers a bread just as pure and palatable, white and wholesome as with all wheat flour.

This is not the "so-called" **war** bread, for it's **white** bread—the bread the American public has been educated to eat.

It means a saving in baking. Corn Flour is first of all relatively cheap. Its further economy in bread and cake baking is apparent, as Corn Flour takes from 100% to 200% more water than wheat flour.

Corn Flour requires less shortening material. Corn Flour causes the yeast to work better in the batch.

Corn Flour does not char readily and is fine for use as a dusting flour.

Corn Flour can be used the same as corn starch in pie fillings, custards and meringues, and makes the foods more nutritious.

Corn Flour must not be confused with Corn Starch. Corn Starch is but a by-product—solely a carbohydrate—and has none of the other nutritive properties of Corn Flour.

Send your order to the nearest corn mill mentioned below. Further information, baking recipes, prices, etc., will be furnished on application.

The NATIONAL ASSOCIATION OF WHITE CORN MILLERS

American Hominy Co.	Indianapolis, Ind.
Baltimore Pearl Hominy Co.	Baltimore, Md.
Blair Milling Co.	Atchison, Kans.
Elevator Milling Co.	Springfield, Ill.
W. H. Haskell & Co.	Toledo, Ohio
Chas. A. Krause Milling Co.	Milwaukee, Wis.
Louisville Cereal Mill Co.	Louisville, Ky.
Marco Mills	Pine Bluff, Ark.
Miner-Hillard Milling Co.	Wilkesbarre, Pa.
Mystic Milling Co.	Sioux City, Iowa
Nebraska Corn Mills	Lincoln, Nebr.
Patent Cereals Co.	Geneva, N. Y.
The Schmidt & Walker Co.	Cincinnati, Ohio
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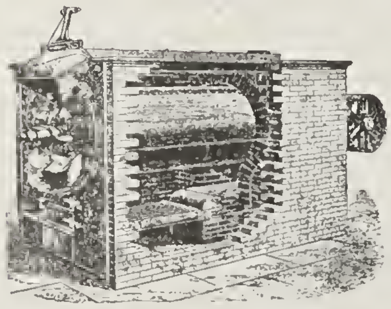

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Food Administration Takes Control of Grain Supply.

With the approval of President Wilson the food administration on August 15th announced the formation of a corporation to take over control of the country's grain supply. The following executive officers have been named:

Herbert C. Hoover, chairman.
Julius Barnes, Duluth, Minn., president.
Gates W. McGarrah, New York, treasurer.
F. G. Crowell, Kansas City, vice-president.
Edward Chambers, Chicago, transportation director.
Curtis H. Lindley, San Francisco, counsel.
J. W. Shorthill, York, Neb., secretary.

WHEAT PRICE FIXING COMMISSION.

The personnel of the wheat price fixing commission was announced as follows:

Henry A. Garfield, president of Williams College, chairman.

Charles J. Barrett, Union City, Ga., president of the Farmers' Union.

William N. Doak, Roanoke, Va., vice-president of the Brotherhood of Railroad Trainmen.

Eugene D. Funk, Bloomington, Ill., president of the National Corn Association.

Edward F. Ladd, Fargo, N. D., president of North Dakota Agricultural College.

R. Goodwyn Rhett, Charleston, S. C., president of the Chamber of Commerce of the United States.

J. W. Shorthill, York, Neb., secretary of the National Council of Farmers' Co-operative Associations.

James W. Sullivan, Brooklyn, N. Y., of the American Federation of Labor.

L. J. Tabor, Burnsville, Ohio, master of the Ohio State Grange.

Frank W. Taussig, chairman of the Tariff Commission.

Theodore N. Vail, president of the American Telephone & Telegraph Co.

Henry J. Waters, president of Kansas State Agricultural College.

THE MILLING INDUSTRY.

Milling interests named a committee to co-operate with the food administration in negotiating voluntary regulation of the milling industry. The committee comprises the following:

James F. Bell, Minneapolis, chairman.

A. P. Husband, Chicago, secretary.

Albert C. Loring, Minneapolis, representing the Northwest.

Andrew J. Hunt, Arkansas City, Kan., representing the Southwest.

E. M. Kelly, Nashville, Tenn., representing the Southeast.

Mark N. Mennel, Toledo, representing the Ohio Valley.

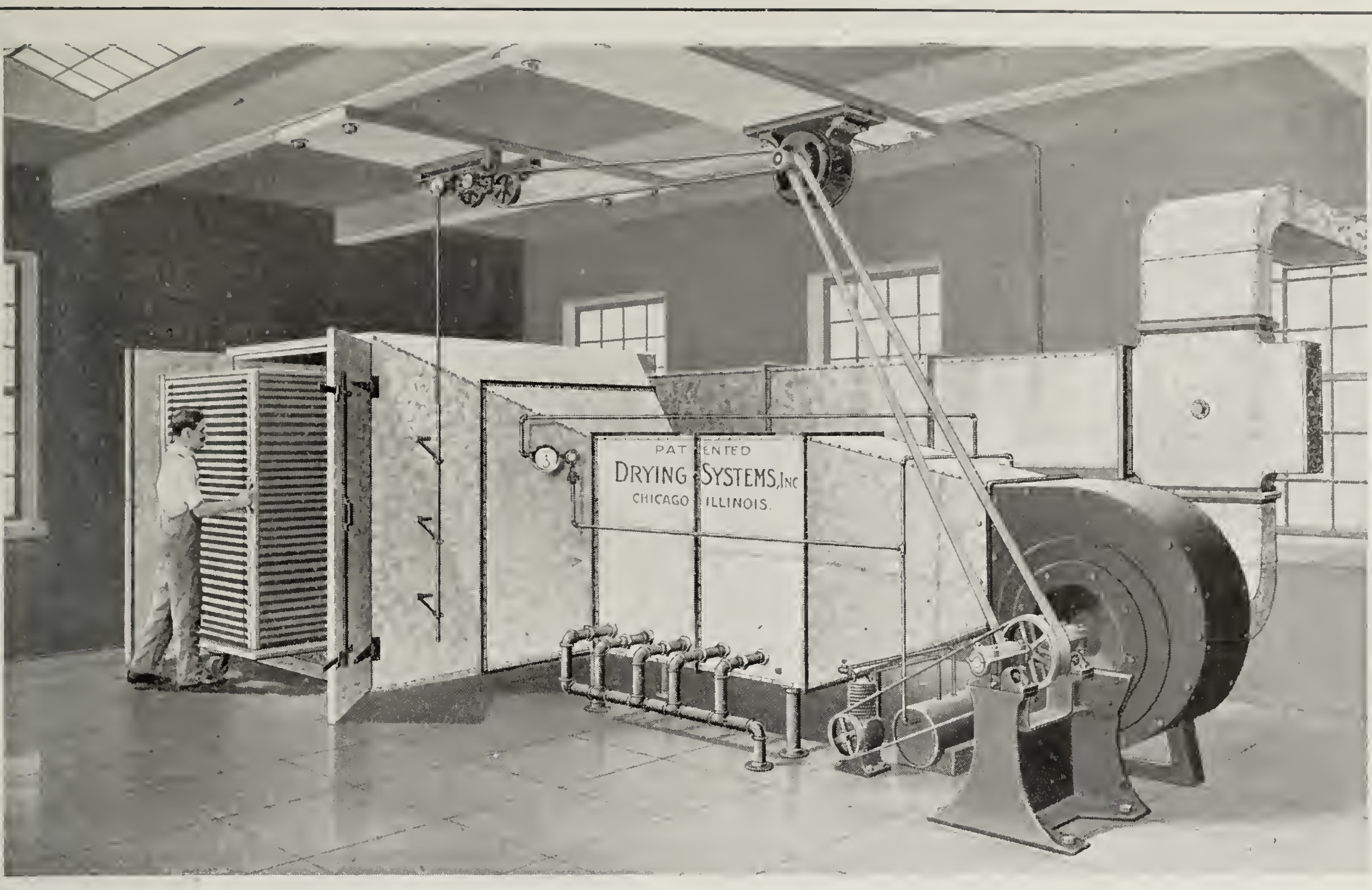
Theodore B. Wilcox, Portland, Ore., representing the Pacific Coast.

Samuel Plant, St. Louis, representing St. Louis and the state of Illinois.

Bernard A. Eckhart, Chicago, representing the cities of Chicago and Milwaukee.

THE GRAIN DIVISION.

Twelve men were named by the food administra-



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George S. Jackson, Baltimore.
H. B. Jackson, Chicago.
Charles Kennedy, Buffalo.
R. A. Lewis, San Francisco.
D. F. Piazek, Kansas City.
Charles T. Neal, Omaha.

Federal Food Commissioners.

A list of federal food commissioners for 30 states was recently made public by the food administration with the approval of President Wilson.

Duties of the food commissioners for the various states will be to administer the provisions of the Lever food control bill so far as they apply to internal state matters and to co-ordinate the state food activities, either official or voluntary, with the federal food administration.

In most instances the food commissioners are prominent business men, who will serve without compensation. The list follows:

ALABAMA—Richard M. Hobbie, Montgomery.
ARIZONA—Timothy A. Riordan, Flagstaff.
ARKANSAS—Hamp Williams, Hot Springs.
CALIFORNIA—Ralph P. Merritt, San Francisco.
CONNECTICUT—Robert Scoville, Hartford.
GEORGIA—Dr. Andrew M. Soule, Athens.
IDAHO—R. F. Bicknell, Boise.
ILLINOIS—Harry A. Wheeler, Chicago.
INDIANA—Dr. Harry E. Barnard, Indianapolis.
IOWA—J. F. Deems, Burlington.
KENTUCKY—Fred M. Sackett, Louisville.
LOUISIANA—John M. Parker, New Orleans.
MARYLAND—Edwin G. Baetger, Baltimore.
MASSACHUSETTS—Henry B. Endicott, Boston.
MONTANA—Professor Alfred Atkinson, Bozeman.
NEBRASKA—Gurdon W. Wattles, Omaha.
NEVADA—Henry M. Hoyt, Reno.
NEW HAMPSHIRE—Huntley N. Spaulding, Concord.
NEW MEXICO—Ralph C. Ely, Santa Fe.
NORTH CAROLINA—Henry A. Page, Aberdeen.
OHIO—Fred Croxton, Columbus.
OKLAHOMA—Dr. Stratton D. Brooks, Norman.
OREGON—W. B. Ayer, Portland.
PENNSYLVANIA—Howard Heinz, Philadelphia.
RHODE ISLAND—Alfred M. Coats, Providence.
UTAH—W. W. Armstrong, Salt Lake City.
VERMONT—James Hartness, Springfield.
WASHINGTON—Charles Hebberd, Spokane.
WISCONSIN—Magnus Swenson, Madison.
WYOMING—Theodore C. Diers, Sheridan.

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CONVENTION SUPPLEMENT

THE AMERICAN FOOD JOURNAL

VOLUME TWELVE Chicago, September, 1917 NUMBER NINE

Containing the Proceedings of the Twenty-first Annual Convention of the Association of American Dairy, Food and Drug Officials

At Atlantic City, N. J., July 31, August 1, 2 and 3, 1917.

James Foust of Pennsylvania

John B. Newman of Illinois

OFFICERS OF THE ASSOCIATION OF AMERICAN DAIRY, FOOD AND DRUG OFFICIALS, 1917-1918.

President—JAMES FOUST, Dairy and Food Commissioner of Pennsylvania.

First Vice-President—A. M. G. SOULE, Chief Deputy, Maine Department of Agriculture.

Second Vice-President—J. M. MOORE, Food and Drug Clerk, Alabama Department of Agriculture and Industries.

Third Vice-President—Dr. E. L. BARNHOUSE, Food and Drug Commissioner of Missouri.

Secretary—J. B. NEWMAN, Superintendent, Division of Foods and Dairies, Illinois Department of Agriculture.

Treasurer—GEORGE J. WEIGLE, Dairy and Food Commissioner of Wisconsin.

Executive Committee—Dr. E. F. LADD of North Dakota, GUY G. FRARY of South Dakota, GEORGE L. FLANDERS of New York, and *ex officio* the President and the Secretary of the Association.

Committee on Coöperation—BENJAMIN L. PURCELL of Virginia, J. S. ABBOTT of Washington, D. C., FRED L. WOODWORTH of Michigan, MAURICE GROSHON of Wyoming and R. E. Rose of Florida.

Committee to Revise Constitution—GEORGE L. FLANDERS of New York, Dr. CARL L. ALSBERG of Washington, D. C., WILLIAM B. BARNEY of Iowa, FRANK A. JACKSON of Rhode Island and Dr. E. F. LADD of North Dakota.

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L. M. Tolman, *Chief of the Central Inspection District,* Chicago, Ill.
R. B. Hart, *Chief of the Western Inspection District,* San Francisco, Calif.

Bureau of Animal Industry.

A. D. Melvin, *Chief of the Bureau.*
R. P. Steddom, *Chief of the Inspection Division.*
B. H. Rawl, *Chief of the Dairy Division.*
M. Dorset, *Chief of the Division of Biochemistry.*

STATE.

(*Except when indicated to the contrary the post office address of each official is the same as that of the administrative headquarters.*)

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J. M. Moore, *Food and Drug Clerk.*
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J. B. Newman, *Commissioner.*
David Klein, *State Analyst.*

State Food Standard Commission.
Walter S. Haines, M. D.
Thos. P. Sullivan.

PROCEEDINGS
OF THE
Twenty-first Annual Convention
OF THE
Association of American Dairy, Food and Drug Officials

Hotel Breakers, Atlantic City, N. J.

July 31, August 1, 2 and 3, 1917

(Official Report)

FIRST SESSION.
TUESDAY MORNING, JULY 31, 1917.

The meeting was called to order by the President, Mr. John J. Farrell, shortly after 10:30 a. m.

President Farrell: The convention will please come to order. Before I introduce the gentleman who is to represent the mayor of this city I wish to ask the members kindly to register and to pass the word along to our fellow members so that we may get a registration of all the members present.

We thought that we were to be favored with an invocation by Rabbi E. Hirsch, who is stopping at the hotel, but we are doomed to disappointment inasmuch as we cannot locate him.

The mayor was unable to be here but has sent his representative and I take pleasure now in introducing Mr. Joseph A. McNamee, representing the mayor of Atlantic City.

ADDRESS OF WELCOME.

Mr. Joseph A. McNamee: Mr. Chairman, ladies and gentlemen, it affords me much pleasure to address the Association of American Dairy, Food and Drug Officials. I am really in a rather embarrassing position this morning in that I am supposed to represent the very efficient mayor of Atlantic City. Your President suggested that, in the absence of the distinguished rabbi, I make the invocation, and in addition he has raised your hopes very high as to what you might expect from me. If our esteemed and honored mayor were here, you would have a person of oratory, and he would be delighted to welcome you. Unfortunately, he has had to assume much labor entailed by the present extraordinary conditions, not the least of which has been the care of the food situation and the arousing of our citizens to a full realization of the seriousness of the problem we are facing.. His work has succeeded well; so well that we have been able to send to France one fully equipped company of infantry and one fully equipped battery unit. Also, a great number of our young men have enlisted in an effort to assist our country in its great trial. As a result of these activities our mayor is now confined to his home because of an attack of nervousness, and it is this which prevents his being here to bid you welcome to Atlantic City.

As I have said, he would gladly have come here as he is the type of man who interests himself in this kind of endeavor. He becomes a part of his city, and he well exemplifies the expression of Lincoln, "A man should be proud of the city in which he lives, and he should so live that the city will be proud of him."

We are exceedingly proud of our mayor because he is a real exemplification of the truest type of American citizenship, whose ideal is to place the public weal above personal convenience.

If he were here he would tell you many things about our great city. He would tell how we, with a normal population of only 56,000, can automatically expand each summer to a population of 350,000, and with absolute assurance of comfort for each individual. He would tell of our famous boardwalk—five miles long, devoted entirely to pleasure and comfort and health, upon which your wife, your daughter or your sister may walk with perfect safety, even without an escort, at any time of the day or night. He would tell you that 35,000,000 bathers entered the surf last year without a single loss of life from drowning. He would tell of our great hotels, equal in capacity to those of several metropolitan cities combined, where one may find all degrees of accommodation at rates, as we often say, "from a dollar a day to a dollar a minute." But, unfortunately, he is not here and I must do my best to make these statements for him.

We have a wonderful city and it has responded to every test that has been made upon it, whether that of extending help to the weak, giving pleasure to those who seek it or response to patriotic appeals. For instance, due to the mayor's efforts we have today what we call a Liberty Club. Each member of the Liberty Club contributes one dollar a week and the money so collected will be given to the dependents of those who have responded to the call to arms. The club now has nine hundred members, but we expect to have two thousand members before we get through with it. *(Loud applause.)*

We sometimes think that Ponce de Leon, when seeking the fountain of perpetual youth, should have come to Atlantic City instead of going farther south. *(Laughter.)* While we do not give perpetual youth, we do give perpetual life and recreation. As the management of one of our hotels so well puts it we are "a town of rest, recreation and recuperation," and to that we try to add the spirit of good-fellowship. We want everybody who comes here to feel at home and we want you all to feel that we are a bunch of good fellows like yourselves.

We have appropriated to ourselves a few lines that have been written with respect to "good fellows":

In this world I have found that we get what we give,
  We are done to about as we do.
But I'll take my chances to linger and live
  With a bunch of good fellows like you.

There's a snap in your eye, a warmth in your hand,
  And your voice is as fresh as the dew,
This always will be a heavenly land
  With a bunch of good fellows like you.

So here's to your health, your joy and your wealth,
  May the world always do as you do;
For great hope and good cheer is in every breath
  Of a bunch of good fellows like you.

So I greet you again and will only say this
  From a heart that is loyal and true,
I will always regret every hour that I miss
  From a bunch of good fellows like you.

(Applause.)

We do not need to give you the key to our city, because the freedom of the city is open to you. We have nothing locked up; our hearts are open to you; we are glad to welcome you to our city; we hope you will have a most delightful time while you are here; we hope that your convention will be a great success; and we hope that your present visit will make you want to come here again. Therefore, I bid you a most hearty welcome to Atlantic City. *(Applause.)*

President Farrell: In the absence of Mr. Flanders, who was to respond to the address of welcome, I am going to call upon Captain Rose of Florida to say a few words. I am taking him unawares as he did not expect to be called upon, but I know he will be equal to the occasion. *(Applause.)*

RESPONSE TO THE ADDRESS OF WELCOME.

Mr. R. E. Rose: Mr. President and gentleman, I am going to apologize to the convention for President Farrell's selection of a "cracker" from Florida to take the place of a man like Flanders from New York. *(Laughter.)* You gentlemen all recognize the fact that you would have had a literary treat had Mr. Flanders responded to the address of welcome. It is said that the only way to make an extemporaneous speech is to have at least a week in which to prepare it. I assure you that I did not have a week. In consequence my response will be short and possibly not to the point.

We all recognize Atlantic City as one of the pleasure resorts and health resorts of America. I have known Atlantic City intimately since 1886, at which time I spent here a considerable portion of each year. I am not going to draw any invidious comparisons between the temperature of Atlantic City and St. Augustine, but it is in favor of St. Augustine. (*Laughter.*) I believe the members of our Association fully appreciate the warm welcome that we have received from the mayor's representative and we realize the importance of the present meeting—the twenty-first annual meeting of this Association. We have met in many portions of the Union, from Seattle in the West to Portland in the East; from Duluth in the North to Mobile in the South. Now we are beginning again to feel around the edge, and I hope in the course of time we may meet in some central place so that we may *all* get together.

I want to say to you, Mr. McNamee, that we heartily appreciate your welcome, and I hope our meeting here will be beneficial, not only to Atlantic City but to the whole nation. (*Applause.*)

President Farrell: While the Secretary is preparing the roll call I will announce the appointment of committees. I do not know whether or not all the gentlemen whose names I have before me are present.

CREDENTIALS COMMITTEE.

George J. Weigle	Wisconsin
Harry L. Eskew	Tennessee
A. M. G. Soule	Maine
Frank A. Jackson	Rhode Island
T. L. Calvert	Ohio

RESOLUTIONS COMMITTEE.

George L. Flanders	New York
H. E. Barnard	Indiana
Benjamin L. Purcell	Virginia
F. H. Stadtmueller	Connecticut
W. B. Barney	Iowa

AUDITING COMMITTEE.

R. E. Rose	Florida
Cassius Clay	Louisiana

The chairmen of the various committees may call meetings at their convenience. However, I would suggest that the Credentials Committee meet as soon as possible in order to ascertain who is eligible to vote. The Secretary will now call the roll.

Secretary Newman called the roll, the following states being represented:

Alabama
Connecticut
Florida
Illinois
Indiana
Iowa
Maine
Maryland
Minnesota
Nevada
North Dakota
Oregon
Pennsylvania
Rhode Island
Tennessee
Virginia
Wisconsin
Wyoming
U. S. Department of Agriculture

President Farrell: In regard to the posting of any possible amendments to the constitution and by-laws I would suggest that they be announced regularly and handed to the Secretary in order to give us time to act upon them, as parliamentary notice must be given. Gentlemen, we are late in getting started and I notice that we are two or three short of a quorum. There are about twenty-two present and it takes twenty-five to constitute a quorum. Shall we proceed with the reports of the Secretary and Treasurer?

Mr. R. E. Rose: I move that we proceed. Although there is no quorum we can attend to routine business. That some are absent is not the fault of the gentlemen who are present.

The motion was seconded.

President Farrell: I think the members will be arriving right along. If there is no objection we will hear the report of the Secretary.

There was no objection and the convention proceeded.

The report of the Secretary was presented by Mr. John B. Newman of Illinois, the Secretary, and is as follows:

REPORT OF THE SECRETARY.

The newly elected Executive Committee met in St. Paul at the State House, 9 a. m., Sunday, April 1, 1917. There were present the chairman, John J. Farrell, President of the Association; Dr. E. F. Ladd of North Dakota, Commissioner Guy G. Frary of South Dakota and John B. Newman of Illinois, Secretary. The meeting was called to order by the chairman. Absent, Dr. S. J. Crumbine, Kansas.

The first order of business was the reading of communications from commissioners of several of the eastern states regarding the dates that they preferred for the coming convention, and some letters were read containing suggestions for the program.

Previous to the meeting of the Executive Committee I had received notice from J. S. Abbott at Washington that the Committee on Definitions and Standards had released a standard for baking powder and that it had been submitted to the Association of Official Agricultural Chemists for adoption and that he wished I would submit it to the Association of American Dairy, Food and Drug Officials for adoption. You will remember that a letter was drawn up and a copy sent to you all, requesting you to express your wishes to the secretary. Dr. Ladd raised the point that Secretary of Agriculture Houston would like very much to have the Association vote one way or the other on it, as there might be some changes in the cabinet and he didn't want to have any unfinished business left over. The report was tabulated, a majority of the states had voted, constituting a quorum, and we found that a majority of those had approved the standard as written by the Standard Committee, and thereupon the Executive Committee adopted said standard.

A further discussion of the suggestions regarding the dates of the convention was gone into. The majority seemed to want to hold it the latter part of July or first of August. The week of July 30 to August 4 was the one preferred by the Deadwood Chamber of Commerce, and it was moved by Commissioner Frary of South Dakota that the twenty-first annual convention be held from Tuesday, July 31, to August 4, 1917. Commissioner Frary said that the Chamber of Commerce had taken up the matter of hotel rates and entertainment and that it would report to the Executive Committee through him.

The Committee then took up the matter of the program and the Secretary was instructed to notify the people selected and the topic that they were requested to discuss. In addition to the names that you will find on the program, the Association tried to arrange with Dr. Lovett Morse of the Harvard Medical College of Boston to give us a talk on the pasteurization of milk, and to arrange with Dr. Crump of the American Medical Society to read us a paper on patent medicines, nostrums and quackery. These two gentlemen were unable to be at the convention and didn't want to prepare papers for any one else to read on their particular subjects. The rest of the program outlined is as you have it before you.

Commissioner Fricke of Missouri had retired and the Executive Committee instructed me to ask J. S. Abbott at Washington to prepare a report for the Committee on Coöperation. Later on, Commissioner Matthews of Illinois retired, leaving on that committee at present only W. M. Allen of North Carolina.

The Executive Committee was in session all day. Various other subjects were suggested for the program and the Secretary was instructed to get in communication with the parties at once that we might give them plenty of time to prepare their papers.

At the end of April the Secretary received a communication signed by several of the commissioners and some of those representing the Federal Government, suggesting that the meeting place be changed from Deadwood, South Dakota, to some place in the East, that if it were not for the extremely hot weather prevailing during the summer in Washington, D. C., we should meet there, also that these were exceptional times, that the food question in all its phases was a most important topic and that our Association should have its annual meeting as near as possible to the seat of the Federal activities. I communicated with the various members of the Executive Committee, and the point was raised and well taken that as the convention itself had selected a meeting place the Executive Committee could not without authorization from the states make any changes. It was suggested that we send out notice to the states and ask for a referendum vote. You are all aware of the letter that was sent out and of the result. The location was changed from Deadwood, South Dakota, to Atlantic City, New Jersey, the dates remaining the same. The Secretary notified the Chamber of Commerce at Deadwood and explained it to them and I hope that they bear no ill will or ill feeling toward the members of the Association.

I at once communicated with the secretary of the Chamber of Commerce at Atlantic City, who had already solicited us for next year, and asked him to have the hotels give us rates, etc. A few of the hotels solicited our patronage; a good many of the hotels wrote and said that they would be filled at that season of the year and could not take us in at any rates. After a good deal of correspondence and investigation by a personal friend of mine then at Atlantic City, and further, in view of the fact that the Breakers Hotel was the only hotel that would give us a European rate and guarantee two beds to a room, we decided to make the Breakers Hotel the headquarters, and so far I think we made a wise choice.

Since the last meeting the Secretary has had nothing to do with the collection of any money other than for some reports, which was turned over to the Treasurer, the Treasurer handling the matter of the states' dues direct with the members from states, and I have no financial report to make.

President Farrell had a talk with Mr. Hoover and his assistant, Mr. Requa, recently while in Washington and one of them agreed to address us Thursday morning. I sincerely hope that one or the other will be here.

I just wish to say that it was decided last year, if you will remember, that those attending the convention outside of the official state and Federal Government delegates should pay a registration fee of $2. That seemed to work very well last year and it is the rule at this annual gathering.

We hope that you all received your annual reports. One was sent to every name that was registered with the Treasurer and Credentials Committee at Detroit, and one will be mailed to every name that is registered here. Please see that you are registered and have your badge.

There has been but the one meeting of the Executive Committee this season. Dr. Crumbine, as well as Dr. Ladd and President Farrell, has stopped at the office of the Secretary several times on trips East through Chicago and we have discussed matters informally. But every action taken has been after each member of the Executive Committee voted upon the question.

Respectfully submitted,
John B. Newman,
July 31, 1917. *Secretary.*

President Farrell: Do you wish to act upon Secretary Newman's report now or shall we wait until we hear the report of the Treasurer?

Dr. William Frear: I move that the report of the Secretary be adopted as read.

The motion was seconded.

President Farrell: You have heard the motion; that the report of the Secretary be adopted as read. Is there any discussion? If not, all those in favor of the motion will signify by saying "Aye." Contrary "No." The motion prevails. We will now listen to the report of the Treasurer, Mr. George J. Weigle of Wisconsin.

The report of the Treasurer was read by Mr. Weigle and is as follows:

REPORT OF THE TREASURER.

To the Association of American Dairy, Food and Drug Officials:

Receipts.

1917		
January		
1—	Cash on hand	$ 65.18
2—	A. C. McClurg & Co., for copy of 1916 proceedings	1.00
15—	Dues for year ending December 31, 1917:	
	Virginia	10.00
	Department of Agriculture (Bureau of Chemistry)	10.00
	Maine	10.00
	Kentucky	10.00
	Texas	10.00
25—	Louisiana	10.00
	Michigan	10.00
February		
15—	Minnesota	10.00
26—	Wyoming	10.00
	North Dakota	10.00
28—	California	10.00
March		
20—	U. S. Department of Agriculture, for proceedings of 19th and 20th annual conventions	2.00
29—	Dues for year ending December 31, 1917:	
	Tennessee	10.00
	Rhode Island	10.00
April		
10—	New Jersey	10.00
16—	South Carolina	10.00
June		
5—	Maine, dues for 1918	10.00
	A. C. McClurg & Co	1.00
July		
19—	Dues for year ending December 31, 1917:	
	Pennsylvania	10.00
	Illinois	10.00
	Wisconsin	10.00
20—	South Dakota	10.00
	Total receipts	$269.18

Disbursements.

March		
29—	Windermere Press	$ 18.25

Recapitulation.

Total receipts	$269.18
Total expenditures	18.25
Balance on hand	$250.93

Respectfully submitted,
George J. Weigle,
July 31, 1917. *Treasurer.*

Mr. W. B. Barney: I move you that the report of the Treasurer be accepted as read.

The motion was seconded.

President Farrell: While it is not a real strong box I understand there are not a great many outstanding debts, probably a few.

Mr. R. E. Rose: I would like to know whether the report covers from meeting to meeting or from July 1st to June 30th. We had some discussion regarding that at the convention last year. I think we decided it was the current year for which we were paying dues.

Treasurer Weigle: The dues run from January 1st to December 31st.

President Farrell: I would suggest that when we get our full Committee on Coöperation we really try coöperation and see if we cannot get those states which are not members to join the Association, so that every state in which there is an organized department will be a member.

The motion to adopt the Treasurer's report was carried.

Mr. W. M. Allen: North Carolina has not paid up but we are going to pay up at the first opportunity.

President Farrell: No doubt almost all of the states will come in here. In view of the fact that there is only one member—Mr. Allen of North Carolina—left on the Committee on Coöperation, is it your desire to appoint two temporary members or to leave the appointments until the time for election?

Mr. W. M. Allen: I would suggest that you wait until the regular election to appoint the two other members, as there does not seem to be any necessity for temporary appointments.

President Farrell: If there is no necessity for temporary appointments we will wait until the regular election. Is Mr. Jackson present? (*No response.*) Mr. Purcell, Mr. Jackson is busy. Will you please take the chair?

Mr. Benjamin L. Purcell, the Third Vice-president, took the chair.

Chairman Purcell: The next thing on the program is the President's address. I take great pleasure in introducing to you our honorable President, Mr. John J. Farrell of Minnesota. (*Applause.*)

PRESIDENT'S ADDRESS.

Mr. John J. Farrell: Mr. Chairman and gentlemen, I really am not going to trespass upon your time to deliver an address. It seems as though the delivering of an address to a gathering of this kind would be a sort of an imposition on my part, to express in a way more or less my views on the matters and the needs that you are engaged in. Therefore I will only speak from a very limited few notes.

First, in regard to the Association, I wish to state that there is a provision in one of our by-laws which provides that the Executive Committee shall select the meeting place of this Association annually, unless it is otherwise instructed. Of course, I do not wish to suggest to the body that they should leave it to the Executive Committee entirely, especially if they have some choice to bring it before the meeting, which can be done at any time, as, after all, we must appeal back to the organized body for our authority, but my experience has taught me in a great many similar gatherings in organizations, that it is difficult at the time of meeting to fully weigh the conveniences of the place in which we should meet, and that we vote for a place sometimes to be a good fellow and in order not to disappoint anybody.

It was voted at the last meeting, as you know, to hold the next convention in Deadwood, South Dakota. It may have seemed out of the way for a great many of you, and yet at the same time I felt in duty bound that we should have gone to Deadwood. The Executive Committee have no authority to overturn the voice of the body, but in submitting the referendum in voting we were not submitting it to the same body of people that voted for Deadwood.

However, I hope the Association will overlook these inaccuracies and not lay too great stress upon them. I do not really know why it was thought for the best interests of the Association that we should change. I presume it was done because of the abnormal conditions of our country, and for those reasons it was thought best to meet in the large or near the large centers of consumption, and yet I find, and you find in your various cities, that while the large centers of consumption are very necessary, that there is a field at the present time that seems to be almost more necessary, and that is really the field of production, and it would not have been amiss if we had gone nearer those vast fields of production for this gathering.

The Public Service Commissioners of these States have authority to govern, and I presume each State has such a commission, and has a Committee on Food Production and Conservation, and in view of those things going on throughout our country, and the abnormal necessity of some foods, it would have behooved us commercially to have gone west at the present time. However, I am very glad that we are in Atlantic City, but I see that we have missed just a portion of the mark we were aiming at, and that is that if we were in the midst of population, that is, the density, that we would have a larger representation present, and yet we find that they are much lower than last year. However, we hope they will come in later on.

Therefore I would suggest, unless you have given it very definite thought in choosing your next place of meeting, that you leave it to the Executive Committee. They have a long time in which to deliberate over the matter. They receive invitations from the different cities that invite you, and the Executive Committee will not go very far wrong in selecting the meeting place for you.

I would like personally, and it has been suggested and talked among the officers of the Association, that we might change the form of our program just a little bit, and have one good session a day, commencing earlier in the morning and adjourning say at one o'clock. Commence at nine or nine-thirty and adjourn around one o'clock. It is very tiresome, especially in this very hot weather, as we meet in the heat of the season, and we meet at this time of the year, as I understand it, because it is convenient for a greater number of our members, and for the agricultural colleges and experiment stations and others, to attend the convention at this time of the year. Therefore, it seems hardly likely that we would be able to get away from this particular season of the year, and consequently, it might be a good idea to change the form of our program. However, I only mention this for your consideration.

I am only going to say a few words, gentlemen, in regard to our work. I deem it scarcely necessary to go over in detail this particular work. We are all so well drilled in that that I do not think it necessary, and I assume that a great deal of that will come out in the discussion. Therefore, it is inadvisable, in my opinion, that I should really trespass upon your good nature in delving into work that we have to do in our various States. I will only speak of food products in general in the past and under the present conditions. You all know there will be, no doubt, in the next few days, although we thought some ten days ago that a food bill would be passed by our National Congress, and inasmuch as the passage of the bill for the conservation of food and placing in the hands of a director or board, as the case may be, the control of the prices of food products is bound to bring changes to a greater or less degree in food control. It seems to me a logical conclusion that this body should take some appropriate action to sustain and indorse the efforts of the director or board entrusted with that important work.

To that end I suggest the appointment of a suitable committee to prepare resolutions setting forth the views of the Dairy, Food and Drug Officials of the States here represented.

It is a matter of history that during times of stress and disturbance there are always numbers of patriots whose products are subject to regulations that are for the protection of the consumer. These parties by devious ways and indirections criticise a legitimate product and finally come out boldly and assert that their counterfeit is the equal of the genuine product with the possible exception of some essential ingredient that was unheard of three years ago and of which the general public at this time know little or nothing. One of their methods is to employ some obscure and unknown teacher to advance their propaganda who suddenly conceives a liking for some substitute and commences by apologizing for the high cost of living, especially as applied to the genuine article. By a systematic process of insidious reasoning and qualified doubts the genuine product is given second place in economics, to be used as sparingly as possible because of the superior excellence of the substitute. It matters not that the history of the substitute is made up of deception and fraud and that it has been penalized to the tune of many millions of dollars; that hundreds of men have been imprisoned because it is easy to sell this fradulent substitute as and for the genuine article.

But, says the apologist, that was yesterday; today it is far better than yesterday, and we can prove it by celebrated teachers of economics in States where both are produced and only one is used in cooking, that, if you please, is the substitute because, saith the teacher of economics, in our classes in the university, we use absolutely none of the genuine product as an ingredient for ordinary dishes, but we do use the substitute.

It matters little that lies are taught in the language of truth; that deception is clothed in white; that the manufacturer of a fraudulent article can purchase testimonials from teachers and others, who later, to retain their position, disclaim the meaning of their utterances. The fact still remains that truth travels slowly and rarely, if ever, catches up with well financed falsehood in a high power machine.

We have spent a great many years and large sums of money to build up our industries and wonderful progress has been made, but the work of generations can be undone in a very short period, and the quickest and easiest way to destroy legitimate industries is to encourage the use of substitutes by lax enforcement of law that naturally comes in times of scarcity or when the supply fails to equal the demand.

To my mind, the gentlemen in charge of this food control work will be able to devise some plan and inaugurate some method whereby food will be handled so that it may be transferred from the producers to the large centers of consumption in a manner that will really not discourage production, and yet get it to the consumer of the large centers as reasonably and in as good condition as possible.

I think that this organization, and that the organizations that now exist throughout the country, can render great service to this Food Control Board, or Food Director, whoever he may be, and of course we have reason to believe that the gentleman is already appointed.

Therefore, in closing, I would suggest that you have a committee, a special committee, from this organization, either elected or appointed to wait upon the gentleman, either on your return from Atlantic City, or before you go home, to tender your services, when he or his premier comes to address us on Thursday.

I think, gentlemen, that there is no association so well qualified to render service that will be regarded by Mr. Hoover, or the Food Control Board, as valuable, as this Association is ready and willing to render, and I hope that you will act upon this special committee.

I am proceeding, gentlemen, on the generalities of our work, but I appreciate the fact that you are sweltering out there in this blazing heat, and as we have just a little time to rest up and cool off, I will not dwell upon technicalities of our work at the present time, and in closing I want to ask you to talk the matter over among yourselves, and see if a suitable committee can be selected, if you deem it fit to wait upon Mr. Hoover. (*Applause.*)

Mr. George J. Weigle: Nothing has been presented to the Credentials Committee upon which it can work. I will, therefore, ask that all members present their credentials to the Credentials Committee so that we can complete our records. We have had but three credentials presented up to the present time. All members should present credentials but I suppose some of us have become a little lax and have forgotten this requirement of our Association. Therefore, I shall ask all members to identify themselves to the Credentials Committee and so enable us to report promptly.

Mr. W. M. Allen: Let me say that for a number of years this was not practiced to any great extent. I was Secretary for a number of years and the Credentials Committee never did have anything to work on. So far as the practice is concerned, it has never been put into practice to any extent.

President Farrell: I desire to call the members' attention to the necessity for bona fide delegates presenting credentials. Our by-laws and constitution state who the delegates are to be.

Mr. R. E. Rose: We have been careless in this matter. We have been in the habit of keeping "open house." Anyone from any city could come to our meetings and pay the fees and be accepted as a delegate, because of our carelessness. I believe in strictly following the constitution. A man should be here either as a Commissioner or as a duly authenticated representative, and I hope that the rule will hereafter be lived up to.

Dr. E. L. Barnhouse: If credentials are going to be demanded I would suggest that there ought to be some specification as to the credentials.

Mr. R. E. Rose: The constitution fixes who the delegates shall be. It states that the head of the Department of Food Control is the bona fide delegate. The constitution is very specific on that point.

President Farrell: Our by-laws state who shall be delegates. If the Commissioner, or the man in charge of food control work, cannot himself come, he may designate who shall represent his department at our meetings and such delegate becomes a bona fide member of this Association upon proper payment of dues. The Commissioner of Agriculture or Dairy and Food Commissioner—whatever title he may bear—can designate who, working under him in charge of food control work, is eligible for membership, and may send him to our meetings.

Mr. Benjamin L. Purcell: I would call attention to a resolution adopted at the last meeting which instructed our Secretary to send out blanks to each Commissioner before this meeting took place, that the official in charge in each State might certify to the Secretary the name of the representative, or his substitute. I think that it has been overlooked. I again offer the resolution, if it is necessary, that the Secretary be instructed to furnish blank forms and credentials to each individual, to be filled in and returned with his own name, or the name of his representative, before we commence the meeting.

President Farrel: In answer to Mr. Purcell's question I wish to state that the Secretary wrote such a letter to the Governor of each State, and a great many of them responded. In fact, I myself heard from a few of them before I left home. In each case the Governor referred it to the Commissioner. Of course that does not exactly cover the point that Mr. Purcell brings out; that the Association itself have a blank form to be filled in by each Commissioner who intends to come to a meeting. It is a very good idea. If there is anything that you desire to bring up before we adjourn, the Chair will entertain any motion that you may have.

Mr. Benjamin L. Purcell: I move you that, under a suspension of the rules, the President be authorized to appoint now the Committee on Conference mentioned in his report, so that the Committee may have proper opportunity to prepare a suitable resolution, and so that their resolution may be acted upon without referring it to the Resolution Committee. The suggestion is a most valuable one, and I believe it should be acted upon. In connection with the general preparedness movement I find that there is, in some instances, a lack of appreciation of the splendid assistance the food commissioners of the United States can give the Government in these days of stress. It is, I believe, in large measure due to the fact that others are not familiar with our activities, and I would urge upon this convention that we act now. For that reason I make my motion to suspend the rules; to authorize the President to appoint this Committee which shall confer with Mr. Hoover and his assistants; and to instruct this Committee to devise ways and means whereby we may work out a plan by which we can best help our Government in the general preparedness movement.

The motion was seconded by Mr. Rose of Florida.

President Farrell: You have heard the motion of the Commissioner from Virginia; that the Chair appoint a Committee of Three. I would prefer that this body select these men. However, if you wish the Chair to act, I will do so, although I would really prefer that this meeting should select the three men who are to draw up a resolution tendering the services of this body to Mr. Hoover and his assistants.

Mr. Frank A. Jackson: I move that the Committee be composed of the following gentlemen: Mr. John P. Street of Connecticut. Dr. E. F. Ladd of North Dakota and Dr. H. E. Barnard of Indiana.

Mr. R. E. Rose: I second the motion.

President Farrell: You have heard the motion, gentlemen; that the Committee consist of Mr. Street, Dr. Barnard and Dr. Ladd. All those in favor of the motion signify by saying "Aye." Contrary "No." It is so ordered, and these gentlemen are appointed a Committee to wait upon Mr. Hoover. Is there anything further you wish to take up before we adjourn? We have this morning omitted a couple of items on our printed program, but we are getting along very nicely. If there is nothing further we will now adjourn until two o'clock.

Adjournment was taken until 2:00 P. M.

SECOND SESSION.
TUESDAY AFTERNOON, JULY 31, 1917.

The meeting was called to order by President Farrell at 2:00 P. M.

President Farrell: I think we had better proceed with the program so that we may adjourn a little earlier than usual. We will omit the report of the Credentials Committee. The first paper on the program is "Grades for Canned Corn, Peas and Other Foods," by Dr. William Frear of Pennsylvania.

GRADES FOR CANNED CORN, PEAS AND OTHER FOODS.

Dr. William Frear: Mr. President and Members of the Associaiton, of the different food products put up by the canning process, each kind or species commonly includes materials that differ one from another in a variety of ways and in such degree as distinctly to influence the choice of the consumer.

These differences may be roughly divided into three groups or classes.

VARIETY.

Of these, the first is *"variety."* This term takes its meaning from its use to distinguish certain types or degrees of difference existing between different strains of plants or animals that belong to the same plant or animal species. Thus among pears we have the Bartlett, the Seckel and the Keiffer, as illustrative of varietal differences. Sometimes variety names are used to distinguish not single strains but certain groups of similar botanical varieties, as the terms "early smooth" and "late wrinkled" are used to designate two groups of peas, each group containing several distinct horticultural varieties.

STYLE.

The second kind of difference is indicated by the term *"style."* As thus used, style refers to a difference or differences that are due to a special mode of preparation; for example, sweet corn so prepared that the grain is broken down and, in the finished product, the harder parts of the kernel are imbedded or suspended in an opaque, creamy liquid, are said to be of the "Maine style" as contrasted with the "Maryland style," in which the kernel remains unbroken as far as may be and the liquor in which it is suspended is thin and transparent. When the product is not simple, but complex, that is, made of more than one raw material, the term "style" refers also to differences in the kind and manner of preparation of the materials that are added to the main ingredient.

GRADE.

Finally, we have a third group of differences that are indicated by the name *"grade."* These are differences that occur within the variety and style and include all the kinds of difference that influence the choice of the consumer. Grades, in other words, stand for degrees of desirability or excellence. Among the qualities that determine grade, are texture, consistency, color, flavor, odor, acidity, sweetness, astringency, form, size, uniformity in one or all of the foregoing qualities and freedom from blemishes due to the raw material and from defects due to imperfections in the manufacturing operations.

RELATION OF GRADE TO QUALITY.

The term "grade" originally means a step, and, when used to indicate an order of excellence, it may be regarded as a step in a series of steps. We must remember, however, that the degrees of excellence in the qualities above mentioned do not progress with breaks, but continuously. We all know, as an added fact, that the several qualities above mentioned as determining grade do not always progress from the poorer to the better at the same rate. Indeed, it may be that in a given case one quality has passed its highest perfection and is going back as the others go forward. The line dividing one grade from another is therefore more or less arbitrarily set. In the establishing of grades for commercial purposes, the relative choices of the buying public must determine the classification rather than some purely theoretical distinction made by simple chemical or physical means. What I am trying now to make clear is that there is no entirely satisfactory mechanical way in which grades can be determined. Purely chemical and physical methods of distinction do not serve. The relative excellences of quality are determined by use of the eye, the nose, the mouth and the perception of touch.

To prove that the determination of relative quality or grade by the use of the sense perceptions is neither impossible nor impracticable, reference need be made only to the closeness with which butter experts score that product. It is well known that expert butter scorers often differ within less than a half point in a hundred in their estimates of the excellence of a butter sample. Having admitted that qualities measurable only by sense perceptions must in all probability be used in the primary distinction of grades, and having, in consequence, admitted the need for extensive additional experience on the part of those whose duty it is to see that misbrandings as to grade do not pass unnoticed, I think we may safely express the hope that at many points we may employ chemical and physical methods for verification of the differences first determined by sense perceptions purely.

UNDESIRABLE USAGES.

The use of grade names is by no means new. The chief points of criticism with respect to past practice are: First, the excessive use of superlatives, and particularly the use of superlatives of excellence for inferior products; second, the failure to use adjectives in such manner as to indicate to the buyer the true relative order of excellence of the product; and, third, the use of names that have no primary quality significance but that are expected to attain some associated quality meaning from experience in the use of the products to which these names are attached.

I desire at this point to recognize the problems of the salesman and to say that a certain measure of approval must be granted to salesmanship rhetoric. That rhetoric ought not, however, to go so far as to mislead; and certainly it is time to object when such terms as "fancy" and "extra fancy" are used to indicate the quality of the material that is left when the run-of-the-field of any crop has been deprived of its best portions by careful selection.

HOUSE BRANDS.

Many distributors place upon their cans names which they term their "house brands." If these names are not misleading in their significance certainly no objection can be offered to their use. If a distributor wishes to distinguish his best choice of various kinds of canned products by the name "American Beauty," and his second choice by the name "Lily of the Valley," I can't see that anybody is hurt. It may be that after a while the buyer will come to see what the distributor means, although the attainment of such knowledge is likely to be long delayed.

GRADES AS AFFECTED BY SEASON.

There is another feature of past usage regarding which something can be said on both sides of the question. From the crop of an average growing season we may secure a certain definite proportion between the best grades, the intermediate grades and the inferior grades; in a better season, the proportion of the better grades may be greater; in a poor season, very low. The demand for the better grades is probably little variable. It follows that after the better season there is no difficulty in supplying all who seek the better grade at its relatively higher price. But what is to be done after the poor season when there is almost none of the better grade to be supplied? There are two ways to proceed: First, to change the absolute significance of the grade each season so as to preserve in about the same proportion from season to season the relative volumes of the products to be labeled better, average and poorer, respectively; second, to keep as nearly invariable as possible the quality significance of the grade name and, when there is no best in stock, to tell the buyer plainly that such is the fact. The second method best preserves the meanings of the grade names, and, in the end, will gain the buyer's confidence in the skill and fairness of the seller. The former method has, however, been very generally practiced, and, if the majority of distributors of a certain commodity use that method, it is very hard for single firms to use the better method and keep their business.

A BETTER SYSTEM OF GRADES.

What is needed to improve the present conditions in the use of grade names? One of the vice-presidents of the American Can Company, Mr. George Cobb, has very happily, I think, expressed the purpose of the label when he said: "The label should be the window of the can." To bring this to pass, grade names should be used in such manner that they shall give to the consumer a correct idea of the relative excellence of the can's contents. To do this, words should be used that carry these relative meanings most easily to the consumer, and they should, so far as practicable, be used for all kinds of products in the same order. I have said "so far as practicable," because it is a matter of experience that people choose some kinds of materials with far more care than they choose other kinds; that is, they recognize easily a greater number of grades in one kind of product than they do in some others. Hence, while four grades might serve for one kind, it might take eight grades for a second kind.

An additional suggestion is needed. When a food is not fit to eat, it ought not to be offered for sale as food. But I don't believe it is sound public policy to give to the lowest grade that is fit to eat a name that would take away the consumer's appetite for it. We don't have enough good appetites in America as it is. Why needlessly destroy some of those that remain? Why disqualify by a name any portion of our wholesome food supply?

Do not attempt too great a number of grade subdivisions for a product. A limited number of classes will serve the needs of the average buyer. To increase the number will simply increase his difficulties of distinction and burden him with an educational need that he is not very willing to recognize. The average American doesn't take enough time to eat. He isn't willing to bother with too much detail. His attitude with respect to the worth-whileness of fine distinctions is very, very different from the attitude of the good-liver, who spends a good part of his waking hours in eating and planning what to eat, who sits long at the table making his own salad dressing, and who gives detailed directions to the waiter as to the kinds and amounts of the flavoring constituents that are to be put into the cocktail with which he starts off his dining adventure.

If few subdivisions were made, it would follow, of course, that the quality distance between the lower and upper limits of each grade would be wider than if many grade subdivisions were attempted. Within this wide range of excellence pertaining to a given grade, there would be a large liberty of choice; a wide room for the exercise of the finer selective skill. The expert would not be deprived of the chance of using his hard-won ability, nor from getting a return from its use. All the information that the system would require could be given upon the label in very few words, and the education in the use of the simplified system would not offer great difficulties. The use of house brands that are not misleading could be retained without confusion.

GRADES AND STANDARDS.

There is an additional advantage that would necessarily follow the general adoption of a simple, consistent system of grade names. Its use would remove some of the objections made to the adoption of a minimum standard of excellence for a given kind of product. This minimum standard cannot be placed so low as to include materials that are unsound, or that are so abnormal in their qualities in other respects as to make them unacceptable to the buyer and to make him and all his friends feel that he had been misused, when the products were supplied to him under the normal trade name for the kind, without any warning of the inferiority of the materials sold. For use under our food laws, the "minimum standard" must, however, be set far below the average. If the standard is not placed thus low, it is unjust. If it is placed thus low, it is thought to lower the general average of excellence, because it is claimed that all the producer tries to make is the thing that will pass as "standard," and that both the producer and the buyer forget what the words "minimum standard," really mean. I judge that there is some truth in the claim, but it is certainly not the whole truth. The demand for the better classes of goods will continue, and this demand will, in the end, correct the tendency toward the lowering of average quality. However, if the range between the poorest thing that is fit to sell under an unqualified name and the best thing of the kind, is subdivided into grades, and grade standards are adopted, it is probable that the tendency to work downward in quality toward the minimum standard will be promptly arrested.

THE SCORE-CARD METHOD.

At this point it may be well to mention and briefly discuss the suggestion that differences in grade may well be determined and expressed for canned products by the score-card method, which has come to be so generally used in the grading of butter. This method has, as you are doubtless all aware, been very helpful in fixing present agreements between the producer and the commission merchant or wholesaler, in the improvement of the quality of creamery products and in determining priority in prize contests. The different properties recognized in the judging are each assigned an arbitrary value according to their estimated relative importance. Each of these values represents a certain part in a score of one hundred, and their sum is one hundred. If, for example, the value of forty were assigned to flavor, the highest excellence in flavor would be marked forty in the scoring; a thing with flavor three-fourths as good would be marked thirty, and so on down. But the buyer who was offered a product in an opaque, sealed container labeled "Grade 90" wouldn't know with respect to what quality or qualities the product was deficient. All he would know is that, on the whole, the qualities sum up to a right good figure. The scoring method could have had absolutely no educational value had it not, as heretofore used, been accompanied by a detailed report of the score with respect to each important quality and usually with a suggestion as to the causes of the several deficiencies observed. The proposal to use score totals as the means of informing the buyer definitely as to the qualities of the goods in a can, must fail unless the detailed score also be given. I incline, however, to believe that the use of the score method has the advantage of giving a rather high measure of definiteness to the judging and that its use is not incompatible with the use on the labels of a corresponding series of grade adjectives indicating relative orders of excellence.

A MOVEMENT FOR IMPROVEMENT IN GRADING SYSTEM.

I have ventured to set forth thus at length what I believe to be the more needed improvements in the existing usage of grade names. I recognize clearly that I am speaking to public officials who are sworn to enforce laws relative to adulteration and misbranding that are just as fully applicable to the several grades of a product as they are to its kind. These laws, however, as they now stand, give you no power or, at least, very little power to determine affirmatively what names shall be used on a label. You can, in other words, say that certain grade names are misleading as applied to the product sold under them, but you cannot determine the choice of other words to be used to indicate the grade. I am happy to be able to say to you today that the trade itself has, at least an important division of it, seen the desirability of improving past conditions and has deliberately undertaken that improvement. The National Canners' Association and the National Wholesale Grocers' Association have committed themselves to the policy of a revision of grade classifications and of grade names, and I wish at this time to say to you that, while the Committee on Definitions and Standards is lending what aid it can to this movement in the interest of the consumer and of the honest dealer and packer, the principal credit belongs to the members of the two organizations I have just named. The initial steps have been completed for the product, canned peas. The canners of corn, tomatoes and fruit, the Hawaiian pineapple packers and the sauerkraut manufacturers, are busy in the study of the problem as it pertains to their respective products; and leaders in the shrimp canning industry have indicated their readiness to take up the work. Until the respective groups of producers and distributors have reached their conclusions, I do not think it wise to discuss the details of their work. The Committee on Definitions and Standards has, however, accepted the grade classification for canned peas, and a standard for that product, together with the grade standards subordinate thereto, will at a later time during this convention be presented to you by the Chairman of your Subcommittee on Definitions and Standards. I may, however, say by way of explanation that peas are grouped into two great varieties, the "early smooth" and the "wrinkled or sugar pea" variety. There is no specific proposal with reference to styles for canned peas, since there is at present no clean-cut distinction of that sort. Where the peas are sorted as to size, that fact, together with the size grade, are to be separately set forth on the label. In distinguishing between quality grades, tenderness or succulence, color and color uniformity, and the correlated clearness or opaqueness of the pea liquor, are made the points of distinction.

President Farrell: We have all appreciated very much Dr. Frear's interesting talk on canned goods. We have a few moments in which to discuss the matter if anybody cares to do so, and possibly some one may be able to bring out points that the Doctor may not have thought of during his talk. We shall be glad to hear from any of the gentlemen who have anything to say on this subject. I understand there is going to be a gentleman present who may have something to say in the discussion of this matter a little later on.

Mr. Frank A. Jackson: I understand that some people are labeling field corn just the same as they label sugar corn. They are labeling the field corn, sugar corn.

Dr. William Frear: Mr. George Cobb coined a very apt phrase when he said the label ought to be the window of the can. I would like to see in use such a label as will serve as a window for the can.

Mr. J. D. Mickle: I would like to ask as to what extent the housewife has any influence in establishing grades?

Dr. William Frear: I have just said that the choice of the people has primarily determined the question of grades; beyond that I do not think I can go.

Dr. E. L. Barnhouse: In my opinion the label should show the weight of the contents of the can; that the can contains a certain proportion of constituents native to the product, instead of water; and, in plain English, "The contents of this can should be emptied when the can is opened." Much harm comes from opening a can, using part of it and then placing the can back on the shelf with part of the contents left in it. In the case of canned corn the label should indicate whether the can contains sweet corn or field corn.

President Farrell: In regard to the question which the gentleman from Missouri just asked, I presume you mean whether it is sweet corn or has added sugar/

Dr. E. L. Barnhouse: Yes, that is what I mean.

President Farrell: Dr. Bigelow is present and no doubt he will be able to answer your question.

Dr. W. D. Bigelow: The point raised by Commissioner Barnhouse is one that has been much abused, and is one of much importance. Some of the questions which he asked are very easily answered; for instance, as to whether a can contains sweet corn or field corn. I have never seen any field corn in a can; I understand it has been canned but I have never seen in cans any field corn. Of course, your laws all require that if a can contains field corn it should be so declared. Canned corn is presumed to be sweet corn; if it is not sweet corn the law of every State, I am sure, and the Federal law is comprehensive enough to regard that as misbranding.

In regard to added sugar, one certainly cannot add sugar to field corn and make sweet corn of it. They are quite different products. Sugar is always added to canned corn unless it is very low grade corn. The highest grade canned corn always contains added sugar and the higher the grade the more sugar is added. It is not added to take the place of a natural constituent. It is added for the same reason that it is added to peaches and cherries; to give them the flavor that is desired.

Now fancy sweet corn must be canned soon after it is gathered. For that reason the canning plants have been carried farther and farther into the country. If a canner draws his supplies from a distance he handles the corn with motor trucks. When corn is allowed to stand a number of hours without being spread out to keep it from heating the flavor is lost and cannot be brought back by adding sugar or any other ingredient. It cannot be "fancy" corn and no canner would add sugar to such a product as he would lose money by so doing.

I was interested in Commissioner Barnhouse's remark in regard to allowing the contents to remain in an opened can. I think it is true that after a can is opened tin dissolves a little more rapidly than before it is opened because of exposure to the air, but the amount of tin that could dissolve within a day or two—the utmost a can of food after being opened could be kept in a refrigerator—the amount of tin that could be dissolved in such a time would be entirely negligible. That is a matter which we have studied in considerable detail with a large number of samples of various kinds, and we find that the amount of tin dissolved under those conditions is no greater than is the variation between two cans put up in the same kettle and kept under the same conditions.

I think all who are interested in foods should deplore the current impression which is being constantly circulated by popular writers in regard to housekeeping, and which is published from time to time in the daily papers, and especially in the country papers, to the effect that the leaving of food in an open can is liable to produce ptomaine poison. The tyro in bacteriology knows that the organisms that cause such illness—and all organisms, for that matter—will grow as well in a glass dish as in a tin can. I believe much good can be done by those interested in food matters by pointing out the fallacy of such ideas.

I am sorry that I did not hear Dr. Frear's report. It covers matters of much interest and importance to all of us.

You may perhaps be interested in a label I saw last Saturday. I was in a canning plant where a man was using a new label which read "Fancy sweet wrinkled peas, size 4." Now, there is nothing left to be said about those peas. Every person who knows anything about canning well knows that "size 4" refers to the size of a sieve through which the peas were sifted, and hence gives an idea of the succulence of the peas. "Size 4" tells the size of the peas. The words "sweet wrinkled" indicate the variety, and from them one knows the peculiar flavor of those peas. The word "fancy" means that the peas grew under normal conditions, that they had the succulence of that class of peas at that stage of maturity, that they were taken to the canning plant promptly after being cut, threshed out promptly by intelligent methods in order that they might have the best possible flavor and that they were given a brine containing a larger amount of sugar and salt than is used with inferior grades. It means all of that. By the terms of all of your laws it is evident that if the goods have been misbranded action can be taken against them.

Dr. H. E. Barnard: I would like to ask Dr. Bigelow if he doesn't think it would be better to keep condensed milk in the can after it has been opened, provided the can is properly used.

Dr. W. D. Bigelow: Mr. President, condensed milk probably is best kept in the original can. The housewife ordinarily makes two holes in the top of the can; one to pour the milk out of and the other to let the air go in through. As you know, sweetened condensed milk is not sterilized. It is preserved with sugar, and the sugar is sufficient to preserve it for a long time. While yeasts sometimes develop in condensed milk, it takes months for them to act if the contents become contaminated in this manner. All things considered, I think it is best to keep sweetened condensed milk in the open can.

Dr. E. L. Barnhouse: I would like to ask whether or not it is necessary to use preservatives with canned corn, peas, vegetables and similar products.

Dr. W. D. Bigelow: In my opinion there is no canned food which contains any kind of preservative. In canned goods its use is unnecessary, and the canner in adding it would be merely incurring an expense for which there would be no reason. Even if there were any temptation to use it, it would do no good, because the heat of sterilization in the method used at present is ample, so I feel sure there is no necessity for its use. In former years saccharin was used, but I am sure there has been none of it used for the last ten years.

Mr. George J. Weigle: Isn't that a matter that is very hard to control?

Dr. W. D. Bigelow: It is a matter that is very difficult to control. Corn is a rather peculiar substance in that the consistency demanded in different sections of the country varies. People in the South demand a much thicker consistency than in the North. I know one plant, for instance, which packed a lot of corn for a southern order and made it of heavy consistency. In some way that order was countermanded, and they had difficulty in disposing of the product. When the corn season begins, and sometimes in the extreme northern districts throughout the season, there is very little starch in the corn, and very little brine is added. As the season progresses, especially in the southern corn districts, more and more starch develops, and to get the consistency that is desired it is necessary to add more brine. For that reason much sugar and salt is added to the brine as the season progresses. If anything is done in the form of standards for corn, I imagine it will be along the line of the standard of the corn, and I am afraid it will be a very difficult problem. It is one of the subjects to which I have given especial attention the last year and I will confess that to me the difficulties seem to be very great.

President Farrell: We have heard from the distributors. I see Mr. Miller in the room and we would like to hear from him.

Mr. George J. Weigle: I would like to inquire whether we ought to have a standard for solids in corn?

President Farrell: We had a case of this kind in Minnesota.

President Farrell: I see Mr. J. D. Miller of Sprague, Warner & Co. in the room, and we would like to have him say a few words to us in connection with this matter, if he cares to do so.

Mr. J. D. Miller: Mr. President and Gentlemen, after the very clear statement made by Dr. Frear and the further explanation by Dr. Bigelow it appears to me there is really little, if anything, to be said. We favor any necessary statements upon a label which will correctly represent the product. The chief thing in connection with such statements is that uniformity should be sought, so that when a product is labeled it will pass in all States, and not be subject to objection under the rulings of any Commissioner. I think that few realize the expense and annoyance incurred in selling food products on account of inconsistent rulings and lack of uniformity among the several States. On the question of standards, I think much of the statement of Dr. Frear, and it will be to us a pleasure to aid in carrying out the suggested standards which that Committee is undertaking to adopt. I think, Mr. Chairman, I have nothing further to say at the present time.

President Farrell: If there is nothing further to be said on this subject, we will pass on to the next topic, "Soft Drinks, Fruits, Syrups, Etc.," by Dr. Hand of Mississippi. Dr. Hand, I am informed, is not here, and we have not received his paper. We will also be disappointed in the following paper. I knew that Mr. McCabe of Minnesota would not be here to present his paper, but I understand that he was to send it to us in order that it might be read at the convention. The Secretary informs me that it has not been received. If there is anyone present who desires to discuss either Dr. Hand's subject or Mr. McCabe's subject we shall be pleased to have them do so. Dr. Hand's paper was "Soft Drinks, Fruits, Syrups, Etc.," and Mr. McCabe's paper was "Labels and Labeling." If the papers are received later on we will have them read and then there will be ample opportunity to discuss them.

We have had considerable discussion of the labeling and branding of canned corn, etc., and Mr McCabe's paper would naturally give us some ideas on the subject, as the subject is "Labels and Labeling." I am particularly sorry that Mr. McCabe's paper is not here, as he is quite a veteran at labels. Does any Executive wish to talk on this subject? We want to warm up to some of these subjects. The weather is favorable, so let us not be backward about talking.

Mr. Frank A. Jackson: It has occurred to me that there ought to be some sort of a standard in regard to the color used, particularly in strawberry bottled soda. In many cases the bottler uses so much coloring that the product looks like a piece of red flannel. The main use of color, of course, is to give the impression that it is a richer and stronger soda, and I would like to know if the question is being considered and discussed by the Standards Committee.

President Farrell: Perhaps some of the members of the Standards Committee can answer that question, if the matter of the coloring used in soft drinks is being considered. It is like a great many other products; it is put there to please the eye. No doubt Mr. Abbott is familiar with the subject and can give us some information.

Mr. J. S. Abbott: I think I had better refer you to Mr. Street, who is an authority on that subject.

Mr. J. P. Street: I am not prepared to go into the matter. It is Dr. Hand's subject. I am sure that I know much less about it than do the other members of the Committee. In reference to what Mr. Jackson asked in connection with the coloring of strawberry soda, I think that under most laws manufacturers must declare the fact that they use coloring. The laws require them to declare it.

Mr. Frank A. Jackson: I think that all States compel them to declare the coloring, but it is a question as to what standard should be adopted as to the amount of coloring.

Mr. J. P. Street: We have not considered that, and I think it would be an impossible thing to establish.

Mr. Benjamin L. Purcell: Does Rhode Island not require manufacturers to mark it "imitation coloring"; if such is used?

Mr. Frank A. Jackson: We require them to declare it. If they use artificial coloring or imitation flavoring they must declare it.

Mr. George J. Weigle: I believe another very important point is that of the conditions under which soft drinks are manufactured. We find that a lot of soft drinks are bottled under unsanitary conditions and in places under no supervision. I think it is most important for us to ascertain under what conditions soft drinks are being manufactured.

President Farrell: I think that is handled by practically every State under sanitary laws. There may be some exceptions, but it is generally looked after under State supervision.

If there is no further discussion of this subject, we will proceed to the next.

Mr. Frank A. Jackson: Perhaps Dr. Barnard can give us some information on the sterilization of soda water; as to what has proven successful in Indiana.

President Farrell: Dr. Barnard is called upon for a statement as to what success he has had, from the sanitary standpoint, in the sterilization of bottles, et cetera, in Indiana.

Dr. H. E. Barnard: I had hoped to discuss that subject and some others after Dr. Hand had read his paper. Don't you think it would be well to defer any discussion until Dr. Hand has had an opportunity to present his paper? I shall be very glad to talk to you, but I would suggest waiting until later.

President Farrell: You may not have an opportunity later. Dr. Hand's paper has not yet arrived, and no one can say whether or not it will be here. If Dr. Hand does not come it is quite unlikely that we will return to the subject.

Dr. H. E. Barnard: In Indiana we have given considerable attention to the subject of soft drinks, because we feel it is one of those finished problems. We began a good many years ago to study the manufacture of soft drinks, for the reason that they were grossly adulterated, both as to color and as to the use of saccharin, and the additional reason that they were usually manufactured under most unsanitary conditions, which made the product in the bottle, not a beverage nor a food, but rather an object of suspicion to health officers. At the present time those conditions have largely passed away.

In our State the bottler who is still in business is a bottler and not a broken down saloon keeper or a country boy who has a notion that he can make easy money by selling soft drinks. The bottlers of Indiana have an organization. They employ a paid Secretary, not for the purpose of putting over anything on the community or the Commissioner, but for the purpose of improving conditions within the industry. I made a survey of our bottling houses about a year ago. At that time we found not a bottler who was operating his place of business without adequate facilities for washing and sterilizing the bottles.

The first requirement for the manufacturer of soft drinks is an adequate water supply. The next requirement is a satisfactory outfit of the tools of the trade, the first essential thereof being a satisfactory apparatus for washing and cleaning and sterilizing the package. That is about all there is to it.

I do not believe that many bottlers of soft drinks would risk penalizing their own industry by using unwholesome colorings or employing substitutes—sophistications that were prevalent a few years ago. I think we had better drop further discussion of this subject at this time, but before so doing I want to refer to another matter concerning the soft drink industry, one which to my mind is of most vital importance; that is the tendency of many States which are going dry to attempt to unload upon the soft drink industry the burden that has hitherto been borne by the brewer and the saloon keeper.

As you know, Mr. President, many States now require the soft drink manufacturer, the bottler, and particularly the retailer, to pay license fees. I see no reason for such action on the part of the State legislatures, unless, at the same time, every other branch of the food industry is to be similarly penalized. I look upon the soft drink industry as a business which is worth while; an industry which should be developed instead of suppressed or discouraged. I do not believe that the men in the House of Representatives, no matter what States they represent, should propose to tax out of existence any retailer or dispenser of soft drinks.

I think that there is every legitimate reason for promoting the sale of a decent beverage. I expect to see in the very near future a large development of the cider industry, and you gentlemen from those States which raise large crops of apples may very well, with me from Indiana, give special thought to a possible outlet for apples in the manufacture of an absolutely non-alcoholic, highly palatable and nutritious bottle of cider. In years past we have looked upon the soft drink industry as confined to the manufacture of strawberry pop and other more or less nauseating, over-sweetened beverages, but at present this industry is being very rapidly developed, including, as it does, grape juice, loganberry juice from the Pacific Coast and apple juice. I hope that the Commissioners in regulating the soft drink industry in their respective States will realize that they are dealing with a lusty infant industry, which very probably in the next ten years, as the States grow drier and drier, will assume vast proportions.

Mr. J. D. Mickle: What are we to understand by the term "true fruit flavors"?

Dr. H. E. Barnard: There are true fruit flavors made from such fruits as raspberries and strawberries.

Dr. William Frear: The matter of true fruit flavors is not without its difficulties. The flavor of a product may be derived from a fruit and yet not taste like the fruit from which it is derived. If one extracts acid from an apple, puts it into water and gives it an apple color the product may sell for apple pop but it will not taste like apple.

Our object is to encourage improvement, and it seems to me proper to keep the names true.

The chemist's problem is to distinguish real material derived from fruit from the successful combination of separate substances. For example, with respect to strawberries and a number of other fruits which have in the past been chiefly represented by substitute flavors, there are obtainable materials, made from those fruits, which have some of the fruit qualities, and yet, after all, do not, according to our palates, resemble the real fruit itself. I have no objection to such things being sold for what they really are, but I do object to their being sold for what they are not.

When a person buys strawberry pop I think that he should have something that tastes like strawberry and that comes from the strawberry. I do not think it is sufficient that it should come from the strawberry if it does not taste like strawberry. If it does not taste like strawberry I do not think it is a fair proposition to call it strawberry. If it tastes like the strawberry I contend it should come from the strawberry. I have no method of analytical distinction to propose and I do not suppose that anybody else has any present remedy to propose.

That is the existing condition, however, to which we should give our attention and see if we cannot find a solution of the problem. Some people are content with conditions as they are, but it seems to me that this matter opens up a question which deserves our careful consideration. So far as the Executive is concerned—if the chemist may venture to whisper a word in the ear of the Executive—I would say, "Be careful about your names and do not give away things that you cannot get back." By making regulations and writing letters one opens the gate to a wide field.

Mr. James Foust: I would like to ask Dr. Barnard a question. Will you kindly state what you consider true fruit flavors?

Dr. H. E. Barnard: A true fruit flavor is a flavor made from the fruit itself.

Mr. James Foust: Whether it tastes like it or not? Would "strawberry pop" be a true name if the flavor was derived from dried strawberries?

Dr. H. E. Barnard: That is a question that a great many of the Commissioners would like to refer to somebody else. Answering offhand I would say that it was.

President Farrell: That is, that the dried berry would be a true fruit flavor?

Mr. James Foust: In my opinion it is immaterial how it is derived. If it is derived from the strawberry and contains nothing but the strawberry it cannot be called anything else.

Mr. Benjamin L. Purcell: I would like to ask the Commissioner from Indiana to tell us what he considers adequate sterilization apparatus, and what he considers proper sterilization of glasses at soda fountains.

Dr. H. E. Barnard: This subject is expanding pretty rapidly. (*Laughter.*) Adequate sterilization at the plant, as I regard it, means the use of such methods that when bottled the finished product contains no bacteria, pathogenic or otherwise. If the water used for rinsing the package is of low bacterial count, so low that the bacteriologist and the health officer will pass it as a wholesome water, I should not ask the bottler further to sterilize his package. If, on the contrary, the water used for rinsing were contaminated complete sterilization of the bottle must be practiced before it is filled with its proper contents. That means that before rinsing the bottle must be washed in a solution of strong alkali. The most satisfactory methods now employed use the same large systems that are employed in the brewery. The installation is expensive but it is certainly adequate. By that method the bottles are rinsed, then they are washed with a boiling caustic solution and then again rinsed with clear water; the package when it comes to the bottling machine is absolutely clean.

When the Commissioners ask for a discussion of soda fountain methods of sterilization it opens up another very large and very important subject.

Mr. Benjamin L. Purcell: I understand, of course, Doctor, that you can sterilize properly with an alkaline solution, but you may get your bottles clean by some other method. Do all of the large bottling establishments in your State use boiling water only?

Dr. H. E. Barnard: No, it is not practicable.

Mr. Benjamin L. Purcell: Nor is it in my State. What do they use?

Dr. H. E. Barnard: They use a hot alkaline solution.

Mr. Benjamin L. Purcell: It is heated when it first passes through the bottles, but how about the second time that it passes through?

Dr. H. E. Barnard: If the solution is thoroughly caustic it is a suitable cleansing agent; it may be a little dirty, but it is still bacterially safe. I think that is the case.

Mr. Benjamin L. Purcell: Did you ever try the use of chloride of lime?

Dr. H. E. Barnard: No, not for that purpose.

Mr. Benjamin L. Purcell: Do you think it would be an effective agency?

Dr. H. E. Barnard: Yes; but I do not know whether or not it would be practicable.

Mr. Benjamin L. Purcell: Suppose I told you that it had been demonstrated that it was a satisfactory article, do you think it would be preferable to the alkaline solution?

Dr. H. E. Barnard: Chloride of lime would be preferable to any other method which was not thoroughly well applied.

Mr. Benjamin L. Purcell: If you take an adequate proportion and clean your bottles properly, it takes about five minutes, if you use the same in sufficient strength. It is found to be a very effective agency. We are now contemplating the use of chloride of lime solution and I would like your advice as to how you regard its practicability.

Dr. H. E. Barnard: There can be no objection to such use, Mr. Commissioner, if you had adequate rinsing facilities.

Mr. Benjamin L. Purcell: Our bacteriologist is here and he has been making some experiments along that particular line, and I think he has arrived at a standard solution, and he might be able to give us a little information along this line.

Mr. H. V. Stewart: In our experiments we used twenty-five grams of calcium hypochlorite in ten gallons of water. Ordinary soda fountain glasses in which milk had been used were washed with this preparation and then allowed to dry. We found that washing for one minute was sufficient to thoroughly sterilize the glasses.

Dr. E. L. Barnhouse: I would like to ask Dr. Barnard if it has ever come to his attention that the pressure exerted by carbonated beverages is sufficient to destroy bacteria?

Dr. H. E. Barnard: In Kentucky a few years ago they carried out some very extensive experiments along that line proving, or disproving, those points and the Commissioner from Kentucky can answer your inquiry himself much better than I can. He will be able to give you the results of their investigation in connection with the subject of sterilization.

Mr. Benjamin L. Purcell: The result of your work in sterilizing soda bottles, we suppose, refers to the effect of the carbonic gas on the bacterial contents of the package; weren't the bacteria destroyed?

Dr. H. E. Barnard: Yes.

Mr. Benjamin L. Purcell: By exposure to the light and carbonic acid gas, bacteria are destroyed.

President Farrell: If there is no further discussion of this question we will go on to the next topic, "Commercial Edible Fats," by Dr. David Klein of Chicago.

COMMERCIAL EDIBLE FATS.

Dr. David Klein: Mr. President and Gentlemen, the present war has given us an opportunity to arrive at certain interesting facts regarding human nutrition by large scale experiments on human beings, in connection with which we have heretofore had to resort to animal erperiments. Owing to the war time necessity, certain nations have had to experiment with the dietaries of their citizens, and although the results are uncertain, as far as a strict scientific procedure is concerned, we are in possession of certain interesting facts which will have a marked influence upon human beings after the war.

Of course, these experiments have not been carried out with the rigor of scientific laboratory procedure, where only one variable is permitted to change at a time, but if the reports which we get from Germany, and Belgium, and from other countries are true, then it is extremely interesting to note that many of our ideas of the requisites of nutrition will have to be modified.

One of these especially is the question of the relation of fats to human well-being. Before the war, I think every one who was studying the question of nutrition would have admitted that we require a considerable amount of fats in the ordinary diet, and yet if these men were pinned down to the question of whether such fats were absolutely necessary, and on what basis they formed their opinion, I do not know whether any of them would ever commit themselves to the high standards found in the text-books. So, for instance, the English and German and the American dietaries, which are accepted as average required from one to three ounces of fats; or at least this amount was partaken of by the European and American people. Now, the Japanese dietaries, according to Prof. Taylor, do not contain more than four-tenths of an ounce of fat per day, so it would seem that a fat requirement of four-tenths of an ounce, or less a day, was adequate for the maintenance of nutrition.

It seems that despite the fact that the German people are getting enough calories and enough protein to maintain a minimum basis of life, and perhaps sufficient for ordinary work, Prof. Taylor and others studying the subject state that the Germans are always hungry, they are always dissatisfied, and their hunger is a fat hunger. In that connection, I have spent some time looking through the literature to find out what experiments have been performed on the question of the minimum amount of fat required in the human diet, assuming that all other factors were adequate, and I was surprised to find that we have no experiments on the subject worthy of mention. The literature is fairly complete on the question of an abundance of fat in the diet. We are told what effect it will have if fed in large quantities, but what will happen on a limited fat diet, no one is prepared to say. In this connection it is interesting to know that Prof. Bayliss in his recent monograph on the physiology and food of the diet makes this interesting statement: "Despite the fat hunger of the Germans, it is not clear on a physiological basis to see why they should be hungry." He is reasoning from the former notion of the place of fat in the diet, and against his theoretical reasoning we have the fact that the Germans are fat hungry and dissatisfied. The only reason that Prof. Bayliss would vouchsafe, or that Dr. Taylor would venture, for this condition, as far as any European and American diet is concerned, is the important role that psychology plays in satisfying the appetite. And we find with the restricted fat in our diet, we are not able to make the ordinary fat articles which provide us fats, and, therefore, it upsets our normal habits, it affects our gustatory senses and affects the concomitant of digestion, and through all these the normal satisfaction of the diet is changed.

That merely brings up the old, familiar question of the aesthetic and of the psychic effect of our food. If that is so, it seems well that in this country we should take cognizance of the fact that the fat supply, regardless of its energy content, should be carefully safeguarded, in order that it may be incorporated with other foods to make up the normal diet of our citizens, because any change from the normal eating habit will, of course, produce dissatisfaction and discontent which will multiply through psychic effect rather than through physiological effect.

I was talking to some women the other day regarding Mr. Hoover's suggestion for a meatless day, and a wheatless day, and these women said that they were willing to subscribe to a meatless day, and a wheatless day, but they absolutely refused to subscribe to a fatless day. They said that in their cooking experience they found that they were unable to prepare enough modifications of dishes to satisfy their families without the use of fat. When you think of the general American dishes, you can see the force of their contention, because we do use a large amount of fat in the preparation of our foods. I want to call your attention to the Japanese diet in connection with the fact that they do eat a considerable amount of rice without using the fats; but the remark is very appropriate that as soon as the Japanese come over here they are very quick to adopt some of the eating customs of our country, so perhaps they are not so extremely well satisfied with their home customs after all.

That, then, leads to the question of the real value of fats in the diet. Assuming that we have to have a safeguard of sufficient fats, what fats are better than other fats, from a physiological standpoint? The literature is very complete on that subject and I think it is well authenticated that practically all of the commercial fats are assimilated to an extent which would lead to the conclusion that one fat is practically as good as another. From the human standpoint where such variations show one fat assimilated to 95 per cent, another fat to 97½ per cent and a third fat to 99 per cent; those are variations which are attributable to the inadequacy of our results. When a person is only fed for one, two or three days on a fat of a particular kind, conclusions on the efficiency of that fat in the diet are only roughly quantitative. I think we are stretching the point if we try to make differences between economies of fats, say, between 95 or 97 per cent. When we get efficiency as high as that the results are practically the same.

There is one item relating to the efficiency of fat assimilation that has to do with its melting point. It is a well-known fact after years of study on the subject that if the fat melts higher than body temperature it will not be assimilated completely. It is plain to us why, because in the assimilation of fats there is an emulsification process and hydrolizing process which precedes the assimilation in the digestive tract and if the fat will not melt it will not be emulsified readily, and consequently will not be assimilated. Assuming that the fat melts below the body temperature, it is readily assimilated.

Certain experiments by Langworthy and Holmes seem to indicate that certain fats cannot be borne when taken in large quantities. These are unusual fats, such as cocoa butter and others which would not form the chief food of the dietary of up to, say, 100 grams, but when you give these in small quantities I think it is safe to say that there is no difference.

From another standpoint fats have come into prominence through the work of Prof. McCollum and others. It has been shown that certain of the oils connected with the vital processes of the body contain a fat accessory which is not found in fats used as store tissue. This has been made much of in certain directions to compare the real fat value of different fats. I think I can say with the authority of Prof. McCollum himself that his experiments were never contemplated to extend to the widespread use of this notion in some of the channels that it has taken. The amount of the fat accessory in the human diet is sufficiently obtained by the use of butter fat in whatever form it can be obtained, say, up to 5 per cent. It is obtained in other ways than through the use of butter. There should be no fear as to the quantity of this accessory in the human diet, even though not obtained in the form of butter. In milk and in cheese and other products of the dairy we do derive enough of these necessities and also from the growing parts of plants.

So I think we need not fear that the shortage of fat need necessarily concern us with regard to this accessory, provided we do not altogether exclude dairy products from our diet. By that I think we can say it is not necessary to exclusively use certain oils, certain fats in the diet, regardless of the use to which they are put. For instance, if I may take the question of eggs as a parallel example: We may have eggs which can be poached and there may be eggs which cannot be poached, but which will perform adequate food service, eggs which are not on the border line of rots or spots. I do not think any one would venture to say that unpoachable eggs could not be used as a food product or as a food article. On the other hand there can be no question but what their use is highly valuable in the kitchen in making foods that do not require the best eggs on the market, and particularly for the purpose of making cetrain things where a question of extreme palatability is not a great factor.

I think there is a place for every oil which we can get into the diet, provided it is used in the proper place in food preparations. As food officials, it seems to me that we ought to welcome any edible fat mixture, any edible fat oil which will tend to conserve our fat supply and therefore make our food supply secure, provided, of course, that all such fats are sold under proper designation and not in any conflict with the food laws of the Government or of the separate states. I think that there is no question about this, that these oils are legitimate oils; they are thoroughly wholesome and the only question before us as food officials would be to see that all of these products are sold under proper designation and not as misleading articles.

President Farrell: We have a few minutes left and if any one cares to discuss this subject further we will be glad to hear from him. If there is no discussion of this topic, we have finished the program for this afternoon and tomorrow morning's session will be devoted to Section B and then the general meeting will be resumed at 2 o'clock.

If there is no further business to come before the meeting at this time the convention will stand adjourned until 2 o'clock tomorrow afternoon.

The meeting adjourned until 2 p. m. Wednesday.

THIRD SESSION.

WEDNESDAY AFTERNOON, AUGUST 1, 1917.

President Farrell called the meeting to order at 2 p. m.

President Farrell: It is rather hot, gentlemen, but if you folks sitting back near the door will please move forward we will appreciate it very much as it is very hard to hear in this room.

The first number on the program this afternoon is "Sanitation and Health from the Food Standpoint," by Mr. J. D. Mickle of Oregon. I take much pleasure in introducing Mr. Mickle. (*Applause.*)

SANITATION AND HEALTH FROM THE FOOD STANDPOINT.

J. D. Mickle: Mr. President and members of the Association, I feel that my subject of "Sanitation and Health from the Food Standpoint" is one of the most important subjects on the program. It covers very nearly everything that we must consider in connection with our work and my only regret is that it was not given to a bigger man than I, to one who has dealt more closely with the fundamental principles and fundamental facts underlying work of this sort I represent a western state with only one large city. The problems with which I have to contend are small as compared with the problems that come before commissioners of states such as Illinois, New York, Pennsylvania and the rest. I can but speak, therefore, from the experiences which have come to me. They may be somewhat similar in nature to those of others but they are small indeed when compared with those in some states. Nevertheless, I desire most emphatically to emphasize the tremendous problems which lie before us.

In my remarks in this paper I shall endeavor to give consideration to the word "sanitation" as it applies to the preservation or protection of health. Sometimes in making application of the word we lose sight of its true definition, using it to express a degree of cleanliness or freedom from visible filth and we say that an object or place is quite sanitary when strictly speaking the reverse may be true. Be he layman, tradesman or man of professional calling, there is no person to whom the word has a deeper significance, a wider application or a broader meaning than it has to the food official upon whom has been placed the responsibility of passing judgment upon the food establishment and into whose hands has been given the power of law enforcement. Ofttimes he finds himself the object of bitter sarcasm, ridicule or contempt because his convictions of what the word "sanitation" means to him leads him into a line of duty that is unpleasant to all concerned, or it may be that he is forced into issue with those whose ideas of the application of the word are exaggerated, wholly theoretical and impractical, but what we want is a plain, commonsense, practical definition or understanding of the word with which we can go out to the food producer, the food manufacturer and the food handler and achieve actual results at all times in the conduct of all places to which the word "sanitation" or "sanitary" may apply.

Dr. Hunter says, "A great deal more than half the present misery of the world might be prevented and the earth made cleaner and better by coöperation in the matter of sanitation." And he was speaking mainly in relation to foods, their care, preparation and use.

That proper sanitary precautions would save 3,000,000 lives or more in Europe and America annually is the careful estimate of medical experts, and more than half of this relates itself directly to the handling and care of foods.

The great enemies of food preservation everywhere are bacteria. They are especially difficult to control because of their minute size, their universal presence, their rapid growth and their tenacious hold on life. Except for them the question of food preservation would be simple. And with them, as with most things else, "An ounce of prevention is worth a pound of cure."

They are of two kinds, parasites and saprophytes, and of these saprophytes are most to be dreaded in connection with the decomposition of food.

From a physiological point of view all food may be placed in four classes: carbohydrates, fats, minerals and proteids. And of these the one most essential to man's growth, the one that is absolutely indispensable, the one that must be supplied daily in a clean, digestible form, is proteids. The other foods are sometimes called "fuel foods," while the proteids are termed "building foods." The actual living tissue of muscle or brain is composed of a substance called protoplasm, and protoplasm is almost pure proteid material. Proteids, therefore, are of paramount importance. Milk, eggs, meat, cheese and legumes are familiar sources of this highly essential product.

Unfortunately, however, these same proteids are the favorite food for the bacterial saprophytes. They always attack the food containing such material with avidity. It is as essential to them as to us and they are, therefore, our keenest rivals in the use of it. They are especially proficient in breaking down and consuming this particular class of food which is chemically the most complex and the least stable, and their attack is made at this the most vital point in our food supply.

Our only possible answer to this sharp challenge from nature is cleanliness. Sanitary conditions everywhere is the one thing that saves the day. Milk sterilized carefully (and without preservative) has been kept sweet for many years. I am told there is a sample now at the University of Wisconsin that is over ten years old. The flesh of the prehistoric mastadon has been preserved without taint or decomposition for ages in the bogs of northern Siberia. Nature here points the way in answer to her own question and we are rapidly learning to follow.

Many of the most important recent advances in medicine and surgery are based on sterilization and sanitation. Dentistry, pharmacy, veterinary practice, etc., all show the same tendency; and every calling or profession having aught to do with food in any form whatsoever should be even more alert than these. In some cases they do so. There has been a veritable revolution in all matters of food manufacture and food handling. Largely as a result of a great campaign of education which I firmly believe the food law and the food official have had a large hand in promulgating.

Minerals are simple substances found in small amounts in the make-up of food and are generally in ample quantities in drinking water. Carbohydrates are simple compounds of carbon, hydrogen and oxygen in reasonably stable forms, examples are sugar and starch. Fats and oils are composed of the same elements arranged in a slightly different way and are not quite as stable as carbohydrates. All of these foods resist decay reasonably well unless carelessly handled. But the proteids besides having hydrogen, carbon and oxygen have also nitrogen which makes them far more complex and less stable; and for this reason they break down and decay promptly upon exposure of any kind. These proteids are among our most useful and expensive foods and are the ones most difficult to preserve. If it were possible to work out some scale to govern the character of sanitary precaution required, basing it on the proportion of proteins present, it would tend to go a long way towards a correct standardization of our requirements. This is a problem for our expert chemists and, if accomplished, should make a large advance towards the solution of many difficulties.

Dr. Coon tells us that in matters of food sanitation the three classes of organisms with which we must reckon are yeasts, molds and bacteria. The score for yeast is mainly on the good side of the ledger, since it is so extensively used as a source of carbon-dioxide in fermentations, as in bread-making. But molds do not bear so good a reputation. They are merely plants which send their mycelium down into the food mass upon which they grow, in this way extracting their food. In doing this, however, they invariably decompose the body on which they live, and for that reason must be prevented.

If all who handle food could be brought to realize two things I fully believe it would enlist their hearty coöperation and most of the difficulty would vanish.

First they should be made to see that it is, in the end, to their own financial advantage to observe the precaution. Since the added expense in money and labor is usually more than returned in the saving from loss by decay, in the saving of extra labor in handling tainted products and in the increased trade and confidence bestowed by satisfied customers, it pays to be scrupulously careful in food handling.

Then there are many who do not understand what the requirements are or why they are made. Often we find mere children in charge of a fruit stand or a newly married young couple in charge of a restaurant or hotel, enthusiastic but ignorant; or sometimes old people in a bakery or cannery, diligent and faithful, but hindered by aged step, poor eyes and their old-fashioned notions. Then there are the irresponsible who know better but don't care. These are all difficult cases to handle.

If we could educate them as to exactly *why* each precaution is required, and *how* to do it quickly and with as little expense and labor as possible; if we could show them that handling food is a worthy profession and help them to dignify it; if we could *teach* them the science and the art connected with it and make them proud of the calling, most of our objects would be attained. Let us hope that this can be realized and that the time will soon come when the whole food-handling fraternity will be cheerful, effective co-workers with us in our endeavor to eliminate contaminating conditions and make American food standards to approach the ideal.

It has been the experience of the writer of this paper, and I am sure that it has been yours also, that conditions found in food-handling establishments reflect the ideas and ideals of persons responsible for them. I have had many surprises during the time that I have been a food official. It may be that on entering some establishment we are met by a man whose education seems to be very limited, whose experience apparently has been just as limited, his field of endeavor and education seems to have been confined to the small establishment he is operating, nevertheless we find him to be one of the first apostles of sanitary equipment and methods; he regards personal cleanliness as a part of his religion and "example in his place of business is better than precept." The rooms where his goods are manufactured or prepared are in keeping with the cleanly appearance of the man and his motto is not "How much can I make out of it?" but rather "How good can I make it?"

Contrast with this the place where the only consideration given seems to be in getting the stuff out and the money back.

Sanitary equipment costs money, labor is expensive, volume of business counts and times are hard, no regular system of upkeep or clean-up is in practice and the "things" just drift. The inspector is told that the concern wants to obey all of the laws and they are glad to coöperate with him; they welcome inspection, but "you caught us today in a bad time." "Competition is very strong and we are doing our best to keep prices down and are operating upon a small margin." In nine times out of ten the trouble with such a place as we have just attempted to describe rests with the man who is at the head of it. Either he has never learned that sanitation and care in the manufacture and handling of food products means health to those who use his products or else he is utterly regardless of his moral responsibility as a food producer.

We have on file in our office many letters giving concrete testimony that cleanliness and sanitation are regarded as business assets.

Permit me to refer to one case in particular where we prosecuted a butcher twice for violating the food laws of Oregon. After the second prosecution I visited the man personally and found him in a dejected state of mind. He told us that on account of business reasons he could do no better than he had been doing and was living in constant dread of the inspector and the law. The building which he occupied was altogether unfit for a meat market, but he was under lease and his landlord would not release him and threatened to sue him if he vacated the premises. We advised him to violate the lease, which he did, and fixed up and equipped a clean, neat and sanitary market on the same street, one block from the former location, into which he moved March 12th of that year.

His sales for February in the old place amounted to $1,388.55; for March, 12 days in the old place and 19 in the new, were $1,620.95; for April, $2,295.65; for May, $2,629.60.

And today our department has no better friend or supporter in that town than this same butcher.

Sanitary inspection work has come to stay, although it is still in the pioneer stage.

Federal inspection in meat food producing establishments being the most extensive branch at present organized. The strongest argument that can be used in favor of further extending inspection work is a comparison of conditions found in abattoirs and packing houses opertaing under Federal or municipal inspection with conditions found where no regulatory provisions are in effect.

In New Zealand the opening of a local abattoir is made a leading event in the community, flower beds surround the front entrance and great care is observed in maintaining sanitary conditions throughout.

I regret that I cannot speak so highly of all of the abattoirs in the state which I represent; however, I think that in that respect we will compare favorably with other states.

There was a time during the Spanish-American war and before when food scandals and the like were more or less common. But it is nearly three years now since the world war began and we have been shipping enormous quantities of food all of the time without a breath of scandal. Surely this is convincing evidence that there is notable improvement in that time.

Sometimes we are discouraged because progress seems slow, or because of keen, unjust criticism or because of lack of appreciation by the public. But there are, I believe, encouraging evidence to be found on every hand.

With us in Oregon there are scores of places where our coming is welcomed and where a distinct pride is taken in having conditions ideal from a sanitary viewpoint. In some localities a keen rivalry exists in these things and dealers plume themselves when they get a good score card, as in the case of a Pendleton restaurant keeper who prints the inspector's report in full in a conspicuous place on the menu card in red ink and accompanied by the American flag.

Moreover, the general public is becoming more and more appreciative as is evidenced by the character and volume of their friendly correspondence. And the press everywhere has for some time been thundering in behalf of purer and better food. Schools and colleges are teaching it and the pulpit never forgets to remind its auditors that "Cleanliness is next to godliness." Surely a good work is being done, and it seems to me the time is ripe to press the whole matter to a successful issue.

There are many of us assembled here today who are able to look over the field that lies before us through years of past experience and active service. Through the advantage of this retrospect we are able to see the progress made, and we can see what is needed and what tasks are still to be accomplished.

We are assembled to exchange ideas and compare notes, and to map out, if we can, a program for the future. Let us try to make it something tangible, workable and worth while.

The coöperative food and drug control work that is being carried on between the Federal and state governments is bearing good fruit; it should be extended wherever possible. Under present laws general sanitary inspection is a state problem, but I hope to see the time when every cannery, packing plant, condensery, candy factory, bakery or any other food-purveying plant whatsoever shall be subject to regular and efficient inspection.

When we have progressed that far we will be much nearer the pure food millennium.

President Farrell: We have listened to a very splendid paper by the gentleman from Oregon dealing with our sanitary laws, and if you wish to discuss the paper for a few minutes we would be very glad to have you do so. Is there any one who has any questions to ask as to the enforcement of sanitary laws at home or who wishes to ask any questions relative to the different topics? If you care to do so we will give you just a few minutes. If there are any members of the trade here they are also at liberty to ask any questions they desire.

Mr. B. F. Harris of the Pacific Coast Borax Company, New York: I was interested in the remark made in connection with the scandal that arose during the Spanish-American War. I recently received the original report from the Government covering the Government's investigation of "embalmed beef." The report says that Gen. Miles repudiated the statement made in the *New York Herald* and it is claimed that there was nothing wrong with the beef. The sickness among the soldiers was caused by unsanitary conditions in camp. It was stated that typhoid fever was responsible for the deaths, and not "embalmed beef."

With reference to mold spores, the Department of Agriculture, through the Bureau of Chemistry, conducted experiments which demonstrated that if a boric acid solution was used to make paste gum tragacanth it would prevent mold spores from developing.

President Farrell: Is there any further discussion of this topic? Gentlemen, it is not quite as warm today as it was yesterday, so you can warm up to the subject a little more readily. If there is no further discussion on this we will pass on to the next paper, but before so doing the Secretary has a few announcements to make to the members.

Secretary Newman called the members' attention to the fact that resolutions should be presented as early as possible in order that they might be referred to the Resolutions Committee after being read before the body.

President Farrell: The Commissioner from Virginia has a resolution to read.

Mr. Benjamin L. Purcell: I offer the following resolution:

"Whereas, Almighty God in his infinite wisdom and mercy has called to his final reward our distinguished fellow member, Dr. R. E. Stallings, for many years chief chemist of the state of Georgia. Therefore, be it

"Resolved, by the Association of American Dairy, Food and Drug Officials, in convention assembled, that in the death of Dr. Stallings this Association has sustained the loss of one of its most valuable members; that we recognize and appreciate his brilliant intellect and sterling integrity and that we shall miss his wise counsel and advice; that we extend to his family and friends our deep sympathy in their bereavement and record our sincere sorrow in the loss of a conscientious, respected and beloved member of this Association.

"Requiescat in pace."

As a further mark of respect the Secretary of this Association is directed to spread a copy of this resolution on the minutes of the Association and to send a copy of the same to Mrs. Stallings.

Mr. Frank A. Jackson: A resolution of this kind, as I understand it, can be adopted without referring it to the Resolutions Committee.

The foregoing resolution was referred to the Resolutions Committee.

Mr. Frank A. Jackson: I made a motion rather hurriedly naming a committee to confer with Mr. Hoover. If I am permitted to do so by the convention I would like to add to that committee the names of Mr. Purcell of Virginia and Mr. Flanders of New York, our President and Secretary, of course, being ex officio members of that committee.

Mr. W. B. Barney: Do you make that as a motion?

Mr. Frank A. Jackson: Yes.

Mr. W. B. Barney: I second the motion.

President Farrell: Do you understand the motion, gentlemen? It would add two more members to the committee, and, of course, the President and Secretary are members of the committee ex officio. That would give the committee, in all, seven members. Are you ready for the question? All those in favor of the motion will signify by saying "Aye." Contrary "No." The motion is carried.

The next paper on the program this afternoon is a further report of the Committee on Swells and Springers in Canned Goods, by Mr. L. M. Tolman, chief of the central division of the Federal Food and Drug Department, stationed at Chicago. (*Applause.*)

REPORT OF THE COMMITTEE ON SWELLS AND SPRINGERS IN CANNED GOODS.

Mr. L. M. Tolman: Mr. President and members of the Association, at the meeting in Detroit a report was made by this committee on the resolution presented at the Berkeley meeting. The question which the committee had before it for consideration was (1) the cause of swells and springers, (2) the extent of their use and (3) should any of them be used for food?

The committee in its report last year decided that the first proposition, i. e., the determination of the cause of swells and springers, was of such a character that it could only be a subject of a long investigation and that it could not be handled by the committee.

As regards the second question, the extent of the use of swells and springers, the committee was able to show in its report a very extended use of this material sufficient to warrant the matter being given very careful consideration, and showed very clearly the need of some definite control action.

As regards the third question, should any of these swells or springers be used for food, the committee had to recognize the fact that in the class of goods commercially designated as swells and springers there are many different products, some of which are caused by decomposition while others were simply due to damage of the package or improper packing.

The general conclusions reached by the committee as the result of its last year's work were:

1. That swelled canned goods due to decomposition should not be used for human food nor in the manufacture of food.
2. That the reprocessing of swelled canned goods where the swelling is due to decomposition is not a legitimate practice and should not be permitted.
3. That swells which are due to acid reaction of the food upon the containers should not be used for food until further investigation, and certainly it should be determined whether or not any of the gas pressure found is a product of decomposition.
4. That a very determined effort should always be made by food control officials to separate those stocks into the good and bad portions, and to distinguish between swells due to decomposition and those which may be due to overfilling or improper exhaust.
5. That there is an extended traffic in swells and spoiled canned goods, especially in the large cities, the source of supply of which is the rejected canned goods from the grocery shelves, fire or water damaged stocks and that uniform action against products of this kind by the city, state and Federal governments should be taken.
6. That there is need of much greater care by the food control officials and also by the trade to see that condemned canned goods are actually and completely destroyed or denatured, as a very large source of supply of these goods on the market at the present time is due to the illegitimate recovery of such goods which have been condemned and which it was intended to be destroyed.
7. That some means should be provided by which certain classes of spoiled canned goods can be returned to the manufacturer, where the question as to the cause of the spoilage can be investigated; and further, that the committee be continued and that it be authorized to coöperate with committees from the trade to lay out a plan for the more effective control of this question.

As a result of this report a committee from the National Wholesale Grocers' Association consisting of Mr. W. B. Timms of Austin, Nichols & Co., New York; P. S. Vallette of Francis H. Leggett & Co.; Mr. C. E. Wilcox of Sprague, Warner & Co.; Mr. W. E. Stearns of Reid, Murdoch & Co., and a committee from the National Canners' Association, Mr. Frank Gerber, chairman, of Fremont, Mich.; Dr. W. D. Bigelow of Washington, D. C., and Mr. B. C. Olney of Oneida, N. Y., was appointed as a joint conference committee to work with the committee of this Association.

These committees had considerable correspondence throughout the year and at the meeting of the National Wholesale Grocers' Association at Chicago in June a meeting of this joint committee with the chairman of your committee was held to discuss the situation. This joint committee was very anxious to have provided some effective and suitable control of the handling of swelled canned goods, not only those that are not returned, but are to be destroyed in the hands of the holder, but also those shipments which are returned either to the packer or distributor.

The problem for consideration can be very clearly divided into two phases, (1) the return of alleged spoiled goods to the original packer or distributor, which is largely a matter of interstate commerce and would have to be handled under Federal regulation, and (2) the destruction of these alleged spoiled canned goods in the hands of the holder, which would be a matter largely of state regulation.

At the conference in Chicago in June the joint committee of the National Wholesale Grocers' Association and the National Canners' Association stated their willingness to coöperate with both the Federal Government and the state government in bringing about a proper regulation of both of these problems, and stated that they were very anxious to have uniform rules and regulations regarding these products drawn up by state and Federal authorities, these rules to provide that either the alleged spoiled goods could be returned to the original packer or shipper or that they could be destroyed under his supervision; and further, that the responsible party, either the original packer or distributor, would keep an exact record of the disposition of each shipment returned to him, that it would at all times be subject to inspection and that he would agree to notify the proper authorities, either Federal or state, regarding the exact character, location and kind of goods regarding which claims are made for refund.

The proposition which these two associations propose has many points of advantage in that it would give to the food control officials a very much wider knowledge of the location of these spoiled goods and the opportunity to more effectively control the handling and disposition.

The proposition put up by these associations was that they would agree that no claims for the spoiled goods would be paid except where the claim was made in accordance with certain forms to be prescribed in which there would be a complete description of the product, the nature of its condition, its location and amount and that the instructions given by them as to its disposal either by return or by destruction would be turned over to the proper food officials, that any goods which were returned would be returned subject to inspection and in accordance with definite regulations to be prescribed.

This proposal of the National Wholesale Grocers' Association and the National Canners' Association would have application only to goods regarding which claims were made for refund. Any other goods found on the market or offered for sale, of this class, would not be given any other consideration than is now employed; either the state or the Federal Government would be free to take the proper action and see that the goods themselves were destroyed.

Our experience in the examination of shipments of returned goods and the testimony received from the trade indicate that there is a considerable proportion of these returned shipments which are not spoiled but are goods where the cans have been damaged or the labels have been damaged or the cans themselves were improperly filled, so that the product itself within the can is entirely satisfactory and should be saved for food purposes.

The joint conference committee further suggested that definite rules and regulations be provided as to the method for the destruction of these spoiled canned goods, and it would appear to the committee that all canned goods which are swells due to decomposition or which are swells due to the formation of hydrogen gas or those cans which are spoiled due to acid formations known as "flat sours" or cans which are leaking should be cut open and the contents actually destroyed, and that the goods which are salvaged from the lot should be salvaged by some expert in the factory familiar with the handling of goods, who should separate the goods which are simply can-damaged or bear injured labels or are overfilled and should make an exact record of the number of these cans and fill out a statement to be placed on file in the records showing just exactly the nature of the cans which were recovered, the amount recovered, the kind and quality of the article and its disposition; and that these records should at all times be open to inspection by the inspectors of the state or Federal Government and the returned canned goods themselves should also be subject to inspection.

Following is a copy of the resolution adopted at the joint meeting and the proposed uniform certificate for return or destruction of spoiled canned goods.

Resolution adopted at a joint meeting of the conference committees of the National Canners' Associaiton and the National Wholesale Grocers' Association, held at Congress Hotel, Chicago, Ill., June 20, 1917:

Whereas, It is desirable to solve in an efficient and satisfactory manner the problem of the disposition of swelled or spoiled canned foods; and

Whereas, Such solution should have the complete approval of state and Federal authorities having jurisdiction and be uniform for the several states of the United States; and

Whereas, It is recognized that responsible packers are those most interested in the proper destruction of such swelled or spoiled goods and their removal from the channels of trade; it is

Resolved, That the National Canners' Association and the National Wholesale Grocers' Association, through this joint, duly authorized action of their respective conference committees, hereby request the Association of Federal and State Dairy and Food Officials at their next annual meeting to adopt tentatively for one year before final definite adoption such rules and regulations covering the handling, destruction or return to packers of swelled or spoiled canned goods as will insure the following results:

1. The complete removal of such spoiled or swelled canned foods from the channels of trade.
2. Their return by the holder to the responsible distributors or producers, provided such return shall be demanded.
3. Their ultimate complete destruction evidenced by a formal certificate.
4. Full notice to the authorities having jurisdiction of the execution of the requirements, evidenced by transmitting to said authorities a duplicate of the certificate of destruction heretofore mentioned.

And be it further

Resolved, That there be herewith transmitted to the Association of Federal and State Dairy and Food Officials suggested rules and regulations for securing these results, together with a suggested form of certificate of destruction or return of the swelled or spoiled canned foods.

Frank Gerber, *Chairman.*
A. F. Beckmann, *Secretary.*

Uniform certificate for return or destruction or swelled or spoiled canned foods, as required by the Association of State and Federal Dairy and Food Officials.

Holders of spoiled or swelled canned foods will be allowed no credit for same unless a certificate in duplicate in this form, duly filled out and signed, shall accompany each lot of goods for which allowance is claimed.

.....................................19...
(City) (State) (Date)

To..............................
....
....

The undersigned hereby claims credit in amount below stated for the spoiled or swelled canned foods enumerated in and accompanied by this certificate and hereby certifies that such have been destroyed by opening and dumping of contents or have been returned to ....

Number of Cans	Kind of Food	Packer's Name	Can Marks	Cost per Dozen	Total

Above goods received
.... and
Destroyed ....
....
By ....
(Packers)
By ....
....
(Holders)

(On back of certificate:)

Rules and regulations for the return or disposal of swelled or spoiled canned foods.

1. Swelled or spoiled canned foods in the hands of retail dealers must either be returned to wholesalers from whom they were purchased or may, by direction of said wholesalers, be destroyed by holder, provided in either case a certificate in duplicate shall be signed by said holder setting forth the fact of such return or destruction and the manner thereof. One copy of such certificate shall be transmitted at once to the Federal or state authority having jurisdiction in such cases, and the other shall be returned to the packer of the goods and it shall be the duty of the wholesaler concerned to see that such return is made.

2. Swelled or spoiled canned foods in the hands of wholesale distributors must be returned to the packers thereof in case the latter so elect. If not so returned, they must be effectually destroyed by the holder who, in either case, shall give in duplicate a certificate stating the time, place and manner of such return or destruction. One copy of such certificate shall be sent at once to the Federal or state authority having jurisdiction and the other copy shall be sent to the packer of the articles destroyed. Every wholesaler shall keep in writing a record of spoiled or swelled canned foods coming into or arising upon his premises and such record shall state whether the goods have been returned to packers or destroyed.

A retail dealer who may have purchased goods direct from a packer will be in all cases considered to have incurred under these regulations the obligations of a wholesaler.

3. Every packer receiving spoiled or swelled canned foods as a result of the operation of these regulations shall at once effectually destroy the goods; he shall file the certificates of return accompanying them and shall also indicate on the certificates the date of receipt and destruction of the goods. Such certificates shall at all times be open to the inspection of Federal or state authorities having jurisdiction.

The committee after carefully considering the scheme proposed did not feel that it met exactly what was required to insure a real control over these spoiled goods, and proposes as a plan the following idea, which, if this Association feels that it can approve in principle, should be again submitted to this commiteee or to another committee to draw up proper regulations or forms for carrying it into effect.

The committee's idea is that when a claim is presented to any distributor or manufacturer and he should determine that he desired to have the goods represented by the claim returned to him, that he should notify the holder of the goods to the effect that these goods can be returned only after he has received a permit, this permit to be issued in the case of goods shipped in interstate commerce by representatives of the Department of Agriculture, or in the case of goods which are shipped only in intrastate commerce, to be issued by the proper state food official.

The theory upon which the committtee has worked is based upon the regulations now in force as regards the return of the alleged unsound or unwholesome meat food products. Under the regulations of the Bureau of Animal Industry alleged unsound or decomposed or unwholesome meat food products may be returned for inspection, if a permit is obtained either from the inspector in charge of the inspected house to which the goods are to be returned or from the chief of the Bureau of Animal Industry in case the goods are to be returned to a wholesaler or distributor. And it would seem that this general principle regarding the return of alleged unsound or unwholesome meat food products could be applied to the return of alleged unsound or unwholesome canned foods, of whatever kind or description. And we have used the description for these goods as alleged unsound or unwholesome because of experience—and this experience is corroborated by the trade—shows that these goods which are to be returned for a refund have a rule a very considerable proportion that are sound and suitable for food. These represent goods the labels of which have been discolored or removed or the cans have become dented or marred or unsalable. Our experience indicates that probably 40 to 50 per cent of the goods thus returned are suitable for consumption. They are simply unmerchantable in the condition in which they are, and it is proposed under this regulation to allow the return of these alleged spoiled or decomposed food products for the purpose of inspection altogether to be under control and to only be allowed by permit to be issued by the proper food official having jurisdiction.

The proposed plan would give the food officials of this country a very much better control over the whole proposition than we have now under a hit-or-miss inspection system, and it seems to me that it really offers a feasible control over the return of these goods, which would be a benefit not only to the consumer by taking the portions which are decomposed out of the ordinary channels of trade, but would put the packer or distributor in the position to be able to salvage the goods which are simply unmerchantable on account of damaged packages.

This is the proposition which the committee wants to put before this Association at this time, and if the Association feels that it is a proposition which should be considered, then the details of the permit and the form and the details of the regulations are to be drawn up by this committee or some other committee later. The regulation which deals with the return in interstate commerce would have to be drawn up by the Department of Agriculture, but the question as regards the drawing up of these regulations can be readily determined if the general principle involved can be settled by this Association at this time.

There is also one further consideration, and that is that the National Canners Association and the National Wholesale Grocers' Association in this proposition which they have proposed have provided that where a claim was made for the return of spoiled or decomposed products and it was not the desire of the packer or distributor to have these returned, that the proper state food official would be informed regarding the matter at the same time that the holder of the goods was notified that he should destroy them, so that the food commissioner would then be in possession of information as to the location of all of these lots of spoiled goods for which claim had been made, and would be in a very much better position to see that there was a proper disposition made of the goods and that they did not get into the channels of trade.

This is the situation that the committee is in, and in the opinion of the committee this proposition is a workable and feasible method of control, much better than now exists.

President Farrell: You have listened to the report of Mr. Tolman, and the discussion is to be led by Dr. W. D. Bigelow of the Canners' Laboratory, Washington, D. C. (*Applause.*)

DISCUSSION OF MR. TOLMAN'S PAPER.

Dr. W. D. Bigelow: Mr. President and gentlemen, the report of the committee of which Mr. Tolman is chairman is so complete that but little need be said. The question at issue is the disposal of spoiled canned foods; that is, their treatment in such a manner as effectively to remove them from the channels of trade. The trade has been trying to accomplish this result and has done all it can do alone. It is very much to the advantage of the trade to have spoiled goods removed from commerce. It is of advantage because of the reputation of the goods and for a number of reasons that at once suggest themselves.

From time to time fruits may be perforated. Swelling in such cases is due to fermentation by yeasts. When this happens in the home the housekeeper usually recooks the fruit and uses it, and I believe she is perfectly safe in so doing. That is one of the several distinctions that must be made between commercial products and domestic products. If we should attempt to reprocess canned foods that have spoiled or that have begun to spoil, there is no place to draw the line. The question is a very complex one. I do not think it would be possible for any committee to map out a plan of procedure that would be altogether practicable. As we go into the question further we will find that a number of conditions arise which can be solved, can be overcome very readily, but the committee must have latitude. I think that the recommendation of the committee covering that ground is admirable. I consider excellent their recommendation to appoint a committee with authority to work; to formulate its own regulations as it goes along; to put into operation a general system of return or destruction of such products. I believe that by that method the matter can be handled and proper regulations can be arrived at in a relatively short time.

President Farrell: There will be now an opportunity for the commissioners and the trade to discuss this topic of returned canned goods.

Mr. B. F. Harris: In New York state the Condemnation Committee has no jurisdiction of the Health Department. I receive bulletins from the health departments of the various states and in their annual reports is shown the amount of food destroyed every year. In those districts there are destroyed annually thousands of cases of canned goods and yet the canners' associations try to convince the public that there is no danger from eating canned foods. There is danger in eating canned foods that have spoiled. There is a new disease called botulism that affects a great many people. Provided the label is destroyed and the contents of the can is all right I do not think that the contents of the can should be destroyed, but whenever a health department condemns food it destroys it; renders it unfit for human consumption and its return to the manufacturer or the packer would be of no consequence.

Dr. W. D. Bigelow: I was recently discussing that subject with Dr. Emerson and he said that one of their difficulties was that when the trucks in which they carry to the dumps the condemned canned foods passed through the poor districts, children flocked around the wagons and took home many of the cans; that they even went over the dumps and gathered up cans to take home. One of their causes for regret was that condemned products, sent to the dumps, often found their way into the home. The present system of disposal of spoiled foods is by no means adequate.

Another thought that might be considered is the records of spoiled foods, of which Mr. Harris has spoken. The health departments of some cities have been accustomed to calling at the grocery whenever they were invited and collecting products of this kind. They have not been handled in a systematic way, and it is necessary for the good of the public and for the good of the industry that a much better system be created.

I do not think that there is here involved any great question of public health. Of course we all believe that spoiled foods may be injurious to health, no matter what may be the nature of the foods, no matter how they were stored, no matter how they were treated; but whether or not they are injurious to health depends upon the nature of the spoilage. At any rate, they should be destroyed.

Mr. B. F. Harris: With reference to the dumps in New York, where children gather up substances that have been dumped on the dumping grounds, it is evident that the mere dumping of a lot of cans on the dumping grounds does not at all insure the cans being destroyed. If a carload of potatoes were dumped on those dumping grounds there would probably be in that carload several barrels of good potatoes, and the children would work around among the potatoes, get the good ones, take them home and eat them.

President Farrell: It would appear to me that most of us, when on the dumping grounds, can distinguish between a good potato and a bad potato, but in the case of canned goods, supposed to be bad, adults as well as children would have to guess from exterior appearances; and therefore they are dangerous. It would seem that condemned canned goods should be destroyed, rather than left on a dump to be, perhaps, picked up. Such an occurrence is not the fault of the people who originally owned the canned goods, nor does it indicate how well they were put up. It is for the health department to see that they are destroyed as unfit for food. It seems to me that the health department should go a step further and, when they have condemned as dangerous foods that are really bad, have the foods cremated, rather than to leave them where they may be picked up and used for food.

Mr. Frank A. Jackson: Our plan in Rhode Island in connection with spoiled canned goods is this: We have an inspector provided with a hatchet who opens every can and pours therein kerosene oil. There is no chance of its being used for food afterwards. If it is unfit for food we see to it that no one can use it for food. When a dealer has spoiled goods he takes a receipt for the number of cans, the cans are opened on the premises, dumped into a barrel and kerosene added to them. Perhaps if this plan were followed generally there would be no danger of their being carried back into the family and used for food purposes.

Mr. Harry L. Eskew: We find in making our rounds that a can of tomatoes, or a can of something else, may be spoiled in one store, two cans of a different product in another store, and perhaps altogether on one trip we find half a dozen or so bad cans. As the laws of Tennessee do not permit us to destroy the goods, we very politely ask the dealer whether he will allow us to destroy them or whether he prefers to have us prosecute him. If he says that he will not allow us to destroy them we prosecute him; if he says that we can destroy them we do so. We follow that method in the case of nearly every can of spoiled goods that we find.

Dr. Carl L. Alsberg: I hope this matter will be thoroughly threshed out, as it is important. There is no doubt at the present time that the shipment in interstate commerce of spoiled canned goods might be stopped absolutely; at least, it can be regarded as illegal. The question is a matter of policy, a matter of conservation. Shall we endeavor to stop such shipments altogether, or shall we devise a plan which will protect the consumer and also protect the packer against whom the retailer very frequently, sometimes knowingly and sometimes unknowingly, makes fraudulent claims, and which might, furthermore, conserve a certain amount of sound food which would otherwise be destroyed. The question is, what is the wisest thing to do? That is the proposition.

There is nothing in this plan as suggested which interferes with any action of the commissioner or his subordinates to continue in the way they are now proceeding. This plan simply extends to the distributor or packer the privilege to ship in interstate commerce goods that may or may not be decomposed, in return for which he agrees to furnish to Federal and state officials all information concerning the shipment. With that information officials should be able more effectively to control the disposition of such goods than they are today.

In other words, it makes the jobber, or the packer, as the case may be, an inspector to furnish the necessary information concerning spoiled goods to the local officials in exchange for the privilege of having returned under inspection, and under suitable precautions, the whole or a part of a given shipment. Under such conditions the retailer will not make wrong claims concerning the amount of spoiled goods he has on hand. That would give the local official information concerning spoiled canned goods which the local grocery claims to have on hand. With that information the local officers can go to the grocer and say, "Where are those goods?" He gets, at no cost, or no great effort, information concerning alleged spoiled goods which it would require a great deal of inspection work to obtain. Now, is the information which officials will thus obtain to extend the suggested privilege to the distributor, packer or shipper? That is the question that this Association is called upon to determine. That is the question as I see it.

There is nothing in it, as I understand it, to prevent the local official from establishing any regulation he desires in the way of destroying the goods, or from following the method by which he is dealing with the situation now. It should, if carried out properly, give him a lot of information concerning claims made by the grocer on the distributor or wholesaler.

The grocer says, "I have so many cans of spoiled goods and this is what I want a refund on." The official gets that information and sends an inspector around to the retail grocer. The inspector says, "I want to see those spoiled goods," and he then sees that the grocer actually destroys them, instead of selling them to a peddler.

It is a question of balancing advantages against disadvantages; that is what we should consider here today. Is it a wise thing to do or not? There is much that can be said on both sides of the situation.

It does not seem that it is anything which will interfere with the local officials. The assumption is that it will put a great deal of extra work on the Bureau of Chemistry, but the question is, is that extra work worth while? That is the question as I see it.

Mr. James Foust: In Philadelphia we have considerable trouble, not only with canned goods, but with other kinds as well. We have some auction houses which gather up a lot of this old junk and we meet the situation in this way: I have my man go down to the auction place and buy something that looks to him really bad; he pays for it, and tells the man that it is a pretty bad looking bunch of stuff. We always deliver the product to the chemist for examination ourselves, in order to take no chances. We get the name of the auctioneer who sold the product, and if it is bad we arrest the auctioneer and the owner of the goods, and then let the case take its regular course in court. In this way we have brought about a condition among the auctioneers, such, that they are not taking any chances of being arrested, if they know their stuff is not good.

Dr. Alsberg's remarks appeal to me, but, Doctor, when these goods are shipped into Pennsylvania they are all right. The trouble is that the dealers overbuy during certain seasons of the year when there is over production and prices are down; they overload. In time the goods become ancient; many of the goods we bought at auction have been relabeled. Some of the cans were very rusty at the ends, but the labels were the brightest and the nicest you ever saw, although upon examination there was to be seen an old, dirty label underneath the new one. They were fooling the public by this method.

However, it is a great question. I have been sending out information to the wholesale grocers and I know that the National Canners' Association is taking an interest in the matter. But, to me, it seems to be something in regard to which we should move slowly because there is no association that will spend more money and more time for its reputation than will the National Canners' Association, and they have proven that on more than one occasion.

We should caution the wholesale grocers to be careful in buying and the retail grocers not to over-buy nor try to keep stuff indefinitely or in a wet room or cellar, or some other place where it will become bad. Encourage the grocer to sell his goods, to turn over his stock oftener, to buy in smaller amounts and to sell to the people fresh goods; then when we have to take action let it take its regular course through the courts, if they want to carry it that far, and we will find, I think, that the problem will work out itself. However, since this work has been going on, I do not think that we have gotten very much canned goods. I would like to inquire of Mr. Tolman if the question of salvage to be filed is taken into consideration? Would this apply to salvage of this kind?

Mr. L. M. Tolman: No, the committee specifically tried to restrict themselves to one proposition, whether or not the return should be permitted. This proposal would have application only to those goods where there is a definite proposition to return them. It does not interfere with nor have any bearing upon the sale of those goods. An individual will not be restricted in any way as to buying or selling or handling or shipping those goods which are not shipped back to the man who originally distributed them. We have not had time to take up the matter of salvage.

Mr. Harry L. Eskew: My mind is not exactly clear as to whether a commissioner is doing his duty when he permits canned goods known to be spoiled to leave his jurisdiction and go back home. Is he true to himself, is he true to the citizens in his community whose interests it is his duty to serve? If he destroys them he knows right away that they have been destroyed and that the community is safe. If we give a condemnation receipt, as everybody else does, that is bona fide proof to the manufacturer that we have destroyed so many goods, and that to my mind is the particular question that confronts us. I do not believe that I agree with Dr. Alsberg that his plan is convenient; I do not believe that it is practicable. I positively will not permit goods that are unfit for use to leave the state of Tennessee. In other words, when we find the goods in an unfit condition we destroy them immediately; thereby there is absolutely no opportunity for them to get into interstate traffic. We make sure that they do not get to anybody else. That is the only weak point in the proposition, and if this plan does not control the return of those goods so there is no question about it, the scheme is not any good.

Dr. Carl L. Alsberg: The proposition concerns the interest of the people of the country as a whole, a sitution which we in Washington see probably more clearly than some of the people in the states. I think the point of view expressed by Mr. Eskew represents the weak point of the proposition. To answer that, if there is an answer, when such a permit is granted, there should be destruction of the goods at the other end under supervision.

The only reason, of course, for considering the scheme at all is that officials obtain valuable information in return for extending the privilege of shipping, information that would not otherwise be obtained. This way you get information concerning a whole lot of other spoiled goods that you would not know anything about if it were not for this arrangement.

Another point is that there are men who send in lists of claims for goods which are not spoiled at all, or for somebody else's goods that they did not buy at all from the man upon whom the claim is made. Moreover, the packer ought to know why his goods are wrong, so he may improve his processes. It is a question of weighing one advantage against another disadvantage.

Dr. David Klein: I would like to ask Dr. Alsberg this question: Is it the intention to issue permits in the reverse order in which the goods were shipped and expect the return to take place in that order, or will the only shipment made be between the man who has the spoiled goods on hand and the purchaser, or the canner, as the last person to get them? If we have to have a notice every time the goods are shipped from a small dealer in the country to the packer, or the wholesale grocer, and then a notice from him to ship to the jobber, and then from that jobber to another jobber, and finally have six or seven notices, and trace the goods back to the canner, it is going to become very burdensome. If the goods are to be shipped back in the reverse order, and we are expected to trace each shipment from the local dealer and the wholesaler to the various jobbers, it would be a very burdensome task. Is it not a feasible scheme to make only one shipment or a certain few shipments and get our information on the various transactions that have gone in between times? If it is to go back in the reverse order in which the thing has been sold, we will have to trace some shipments six or seven times, even before they get out of the state.

Dr. Carl L. Alsberg: As far as the proposition applies locally that concerns us in that that is the first interstate shipment made.

Dr. David Klein: We are interested in the matter before it gets into interstate shipments. Suppose we have a case in a small town; how far is that going to be shipped? That may go to a wholesale grocer in a town; he may have to take it over to a jobber in another town; and that jobber over to another jobber. Each one wants to see the goods and get his rebate for them. How many times should we keep track of it?

Dr. Carl L. Alsberg: I do not think it is necessary for you to keep track of it at all. That contingency does not necessarily arise. But when a man wants to move goods ultimately in interstate commerce he should get his permit at the same time that the information that the goods are spoiled goes to the state man. If he wants to send the goods ultimately in interstate commerce, the transaction will have to be an interstate transaction direct, and they will have to arrange it among themselves with reference to the local state shipments, so you do not have to worry about them. If they do not arrange to ship direct, if the arrangements are not made this way, there is nothing to prevent you from stepping in and treating it as a local state matter and destroying the goods if they are bad. You have authority to step in and destroy the shipment just the same as you would any local matter.

Dr. David Klein: As I understand the situation, this simply concerns a final shipment of one man in one state, to a man in another state, and is not intended to affect the goods shipped to the small town.

Dr. Carl L. Alsberg: We have considered it to an extent, but we are not taking cognizance of anything that does not go into interstate commerce, which leaves the local man absolutely free to deal with the state shipment, whether it is ultimately destined for interstate commerce or not destined for interstate commerce, to deal with it as he does today. If the grocer or the jobber wants the privilege of ultimately shipping it in interstate commerce, it will be up to him to arrange to ship it in interstate commerce at once, or take the risk that the local man will seize the shipment, which risk will be very considerable, because the local man has the information that these goods are spoiled. I do not know whether that makes the matter perfectly clear to you or not.

Dr. David Klein: I thought this scheme would take into consideration the goods in journey from any country store all the way through to destination.

Dr. Carl L. Alsberg: As far as that point is concerned, that condition can remain as it has been before. If the parties to the transaction want the advantage of this privilege they can refrain from making intrastate shipments, and adjust their differences by correspondence, or otherwise, and move the goods in interstate commerce at once. That was my idea. In other words, it would not interfere with the state jurisdiction over the shipment.

Dr. David Klein: Under this scheme, the state handles all those goods as heretofore?

Dr. Carl L. Alsberg: Only to the extent that if the state gets the information that certain claims have been made, and that the wholesale grocer has directed the retail grocer not to ship a certain portion of the goods, and to destroy a certain other portion, he will see that state inspectors go there and see that it is really destroyed.

Dr. David Klein: The goods are on the shelves in the original place, but the wholesale jobber usually collects those goods from different points. Those are returned from a dozen different places. If there is no provision in this scheme to take care of that feature, it would be objectionable.

Dr. Carl L. Alsberg: There can be, as I understand it. What the wholesaler would have to do if he wants to collect a can here and a can there all over the state is to take his chances on that, as he does today. Then, if he wants to ship them in interstate commerce under inspection, he asks for permission to do that. I do not see how we can handle that situation and interfere in any way with the state.

Mr. Benjamin L. Purcell: We all realize that this condition is now practically controlled by the laws of the various states and the Federal Government, and I think you are treading on dangerous ground when you single out any one industry and attempt to regulate business transactions between the manufacturer and the distributor. The Federal laws and the laws of the several states give the greatest discretion in matters of this kind, and that need never come to the courts unless you want it. The great, just principles which we have enumerated here give the courts discretion to condemn or destroy, or to bond and release. Why we should single out the canners of this great country, I confess that I am at a loss to understand. I have the highest regard for the canners, but we should not enter into trade controversies or trade arrangements. That is not one of our duties, and it is not one of our prerogatives, and I respectfully submit that it is a matter that we should disregard and not attempt to make arrangements for manufacturers in connection therewith.

Dr. Carl L. Alsberg: That is one of the positions that can be taken quite logically. It is a perfectly sound position. It is advantageous for this Association to bring out in the discussion the various possibilities and decide which is the proper thing to do. There is the position that no spoiled goods shall, under any circumstances, be shipped in interstate commerce. That position can be taken, and that is the simplest position to take. The question is, what is wisest and best?

Mr. Benjamin L. Purcell: Certainly, where you have no institution at the other end, such as the canning factory industry, for instance, you are throwing the burden for the investigation on another state man and relieving yourselves of it.

Dr. Carl L. Alsberg: The question arising in that case is that under our present system we catch only a very small percentage. None of us has an inspection force either so numerous or so efficient that we can absolutely prevent the shipment of all goods that are spoiled, in interstate commerce. The question is, is it possible to devise some other scheme which will make our control more effective?

Mr. Benjamin L. Purcell: I would like to enter into some kind of an arrangement during the period of the war.

Dr. Carl L. Alsberg: Will we get something more effective than we have got now? That is what we have been trying to obtain.

Dr. W. D. Bigelow: In regard to Commissioner Purcell's remarks, I want to say that this is no trade controversy. There is no trade controversy involved in the situation here. There is no difference of opinion between trade interests at all. There has been no difference of opinion between trade interests regarding this matter.

Mr. Benjamin L. Purcell: My remark in connection with this subject was as between the distributors.

Dr. W. D. Bigelow: You mean about the return of goods?

Mr. Benjamin L. Purcell: Yes.

Dr. W. D. Bigelow: There has always been a custom to return these goods when it was desired by the shipper, and credit for the goods was based on that.

Now, literally the Federal law would prevent the return of any goods, and the proposition has been made, as Dr. Alsberg said, and he has put it very well, the proposition is that the canners and the distributors are willing to go to a great deal of trouble—for it will be a great deal of trouble to prepare statistics—and keep a record, which it is believed will be very valuable in the enforcement of the law, both Federal and State, and it is believed that this will add efficiency to the situation, and at the same time give the manufacturers and distributors facilities in connection with their operations, which they have always had, and which they believe will be as advantageous as any scheme could be, and which they think will result to the advantage of the consumer, rather than to his detriment, because we believe that the great mass of goods of this character that go to the consuming public, go not through the packer, and not through the jobber, but are sold to the itinerant peddler and carried around by him, and we believe if these were all returned to the packer, it would be the safest thing that could be done for the consumer.

Mr. George L. Flanders: I would like to know whether it is intended to ask for legislative authority to send the goods back or to ask the executive officers to assume the power to issue a permit without specific authority. There are very few cases in our law giving power to condemn and destroy goods and, where it is given, it is specifically given. Is it intended to ask an executive officer to issue a permit without authority in his statute so to do?

Dr. Carl L. Alsberg: There was not any question about that. The man who wants to ship in interstate commerce would have to get a permit from the proper authorities, and the shipment would be made under their supervision. If made, the State officials might agree to supervise the disposition under Federal regulation of a shipment, as a convenience to the Federal Department. That would be as far as they would be involved.

Mr. George L. Flanders: I said I could not hear all the conversation and, consequently, I did not know what the Doctor was saying. It was impossible for us to hear everything he said.

Dr. W. D. Bigelow: It is very evident that we are getting into trouble over this case. We are doing just what I said at the beginning could not be done. We are trying to work out the details of a very complicated thing, and there is only one way that it can be done, and that is by a committee. Commissioner Flanders spoke of calling upon the State to grant permits. No permits are to be asked for, and no privileges to be asked for in any case that have not always been extended. We only want this Committee to take hold of what has been offered in the past, and bring it into some system that will be advantageous to all concerned, and then when we all know about the details, of which we have only a hazy idea now, then we can all discuss it more intelligently.

Mr. James Foust: I want to make a motion, but I want to say first that I heartily indorse everything that the Commissioner from Virginia has said. This is a trade problem, and not one for this convention; there are so many things entering into the situation when we have an overproduction, and there is over-buying by the wholesaler and the jobber. All these things enter into the subject, and, therefore, I move you that this whole matter be referred to the Federal authorities to be worked out, with Dr. Bigelow representing the National Canners' Association, who is in touch with the canners' industry.

The motion was seconded.

President Farrell: You have heard the motion that Commissioner Foust offers. Is there any discussion? Are you ready for the question? All those in favor of the motion will signify by saying "Aye." Contrary "No." The motion prevails.

Mr. A. V. H. Mory: If it is not too late to make remarks on this subject, I would like to raise the question of why illegal merchandise, food products which are illegal but not spoiled, should not be included in this provision.

From the standpoint of the distributor there are occasions on which goods are received which are perfectly wholesome, but which may be considered illegal, or at least concerning which a question may be raised; it may be a case of misbranding, or some question other than the unwholesomeness of the goods, that they are not suitable for sale in the opinion of the distributor. The distributor may not know that they are illegal until he has received them, but if he undertakes to ship them back, he puts himself in the position of disobeying the law by shipping into interstate commerce illegal goods. Can there not be included some provision covering the return of such goods?

Dr. Carl L. Alsberg: Mr. Mory has raised a question which is tied up with this general situation, and that is, that many manufacturers are constantly violating the law by the shipment of that class of goods back to the factory, and no food official that I have ever known has ever made any trouble about it.

Take, for example, the return of deteriorated baking powder. Supposing that you have a baking powder which has a gas strength of four or five per cent instead of ten per cent, and it has been the regular practice to ship or return to the factory. As a matter of fact, people know that the shipment of such goods is a violation of law in such cases, and yet it would seem in a way that we can, because in one case we have a chemical deterioration, and in the other case we have a deterioration which may be deleterious to health, so in an administrative way, we have to use our own judgment on a good many of these things, and Mr. Mory has given me an opportunity to point out that particular phase of his question.

Mr. R. E. Rose: That brings up another question: There are many cases where the goods are illegal, and yet the goods themselves may not be unwholesome. For instance, in cases of misbranding, light weight, et cetera. There is much trouble with lightweight goods which are from five to seventeen per cent short in weight. In such cases, what are you going to do with them? We sell them, and if they are interstate, we refer them to the United States District Court and have them prosecuted.

Dr. Carl L. Alsberg: You make them re-label them, don't you?

Mr. R. E. Rose: We do not allow them to re-label them when they are attempting to sell them from ten to seventeen per cent short.

Dr. Carl L. Alsberg: But when they are finally sold by the United States Marshal, they are sold as what they are. They buy the articles for what it is absolutely sold for. The articles are bought on the representation of what they really are?

Mr. R. E. Rose: Yes.

Mr. A. V. H. Mory: In regard to what Dr. Alsberg has said I would like to suggest that the shipper of such goods back to the original source cannot possibly have any great feeling of assurance, merely from the fact that it is the policy, the present policy, to take no exception to such shipments. He cannot know when the policy may be changed.

Dr. Carl L. Alsberg: Of course, Mr. President, in an administrative way, we always distinguish between different classes of goods according to our experiences. Our experience with canned goods has been such that we know there is sufficient opportunity for the spoiled canned goods to be improperly used. In the case of baking powder, the nature of the goods is such that they cannot very well be improperly used. You cannot take spoiled baking powder and stir it up and get rid of it in the ordinary channels of trade. The best you can do is try to re-crystallize some of the ingredients and make it fresh baking powder, to which, of course, there is no objection. That is the difference between returned baking powder and returned spoiled canned goods, because we all know that the return of baking powder is a bona fide transaction on the part of the manufacturer, whereas we know that it is not always the case with spoiled canned goods. The records of the Bureau show conclusively instances in which spoiled canned goods returned, were re-sold after being re-processed. So we have to distinguish between the two kinds of goods.

President Farrell: This is quite a topic, the return of goods. When goods are bad, in our State, I seize them and destroy them, and that is the thing to do, I think, and if swell goods and springers are bad, they should be destroyed. But there is another side to it: The canning factory, or whatever food article it may be, may not want that product to be peddled around, and, therefore, would want to take them back and give credit for them; he would want to have the goods returned, because it would injure his business. Of course, in some places, they may be settled inside the institution, but in stores there is no chance of getting by, and in that case the manufacturer, jobber or canner, whoever it may be, really wants these goods back so that they may be destroyed, in order that they will not injure him, or his business.

So, from the viewpoint in which he is looking at it, it is to protect himself and his business, and also not to have poor goods going to the consumer. I think there are two sides to that. It is a large problem, but at these times, if there is any doubt about such goods, I think that we ought to go slow in condemning them. We ought to be absolutely sure that they are in a bad condition before we condemn them. I think we could go much further with this feature of the discussion and probably take up all the rest of the afternoon to very good advantage on the subject. But I think we had better pass on to the next paper on "How Can the Association of American Advertising Clubs Help the Food Control Official," by Richard H. Lee of Indianapolis. Is Mr. Lee present? (*No response.*)

Secretary Newman: I have a letter from The Associated Advertising Clubs stating that Mr. Lee would be here to address us, and the reason assigned was that the Associated Advertising Clubs welcomed an opportunity to explain to the convention how their Associations could coöperate with us.

President Farrell: As Mr. Lee is not here, we shall be glad to hear from any of the Commissioners who want to make further remarks in regard to canned goods. We are disposing of that paper very rapidly.

Dr. William Frear: I am a member of the Committee, and I would like to say a word. The view of the Association at the time the Committee was appointed, evidently was that there were concerned interests other than those strictly inside the trade, and, of course, action has been taken with that in view. There can be no question that the control and prevention of the sale of spoiled canned goods is a very important matter to the public. It is not a trade question primarily: It is a question of our duty under the law, so far as the law goes. The only question was, whether or not it was practicable under existing conditions to secure such coöperation and understanding.

Food officials, Federal and state, and the trade associations, have much influence upon the several sets of tradesmen concerned. This should enable us, with the greatest economy, with the greatest ease of procedure to minimize the dangers that confront us. I do not think that any suggestions we could give would remove all the dangers. The spoiled goods are so widely distributed that no inspection system that can be devised and financed by us would take care of all the cases.

I know I am talking very informally now, because the action has been taken, but I hope we will consider the matter, particularly the proposal that has been made, as due chiefly to one thing, the letter of the Federal Act.

I was not present in time to hear the report read, but there are some sound reasons for the occasional return of spoiled canned goods, and they are chiefly three: The first is, that the retailer who had purchased the goods in good faith, should not be made to lose, because of a bad practice, when the fault really lies with the producer, or with the canmaker. On the other hand, the history of returns has been such as to show very clearly that many retailers make claims that are not sound and especially goods made by one man are returned to another, where the return is required before compensation is made. We certainly cannot claim that it is fair to the wholesaler or packer that he should pay the claims presented without having adequate chance, with due economy in the method pursued, to protect himself against claims for damages which have arisen entirely without any fault of his. There is the third case, where the fault lies in the can purchased. It is perfectly clear that under existing conditions the packer will have difficulty in making good a claim against a canmaker unless he presents tangible evidence of the bad condition of the can.

It seems to me, that for each of these three conditions, it would be wise to devise some method, practical in its character, approved by all concerned, or at least, by all chiefly concerned, whereby these three things might be accomplished, and then in addition to that, whereby we may more easily be brought into touch with the goods dangerous to the people whom we are bound to protect.

As I have said, it is very clear that not all of this is purely a trade matter, but a police protection for the people. While a considerable portion of it is a trade matter, it is a trade matter which the trade alone cannot handle, except they have the coöperation of Federal officials. I understand it is the intent of the Association, as far as that phase is concerned, to say that it will please us, if the Federal Government can devise such method or promulgate rules covering such goods returned through interstate commerce. But that will not get us anywhere in the states as far as information is concerned, unless by additional coöperation the Federal Government shall carry out the plan really proposed and give such state officials as desire information concerning points of danger, so that they may be on the lookout for their people.

President Farrell: The next paper on the program is "The Law as Laid Down in the Iowa and Pennsylvania Department of Ice Cream Cases" by Mr. Flanders of New York.

THE LAW AS LAID DOWN IN THE IOWA AND PENNSYLVANIA DEPARTMENT OF ICE CREAM CASES.

Mr. George L. Flanders: Mr. President and Members of the Association, in the year 1909, by the Public Laws of the state of Pennsylvania, Volume 5, p. 5209, it was provided that:

> "No person, firm, or corporate body, by himself, herself, itself, or themselves, or by his, her or their agents, servants, or employees, shall sell, offer for sale, expose for sale, or have in possession with intent to sell, ice cream adulterated within the meaning of this act."

Section 4 of this act provides further:

> "No ice cream shall be sold within the state containing less than eight (8) per centum butter fat, except where fruit or nuts are used for the purpose of flavoring, when it shall not contain less than six (6) percentum butter fat."

In 1913 the state of Iowa passed an Act, providing that:

> "No person, firm or corporation . . . shall manufacture or introduce into the state, or solicit or take orders for delivery, or sell, exchange, deliver or have in his possession with the intent to sell, exchange or expose or offer for sale or exchange, any article of food which is adulterated or misbranded, within the meaning of this act."

The code of that state has a provision, §4999, passed in 1913, which provides that:

> "For the purposes of this act, an article of food shall be deemed to be adulterated:
>
> "First. If any substance or substances has or have been mixed and packed with it so as to reduce or lower or injuriously affect its quality, strength or purity.
>
> "Second. If any substance or substances has or have been substituted wholly or in part for the article.
>
> "Third. If any valuable constituent of the article has been wholly or in part abstracted.
>
> "Fourth. If it does not conform to the standards established by law."

Chapter 175 of the Laws of 1911, at page 193, provides relative to ice cream:

> "Ice cream is the frozen product made from pure, wholesome sweet cream, and sugar, with or without flavoring, and, if desired, the addition of not to exceed one per cent (1%) by weight of a harmless thickener, and contains not less than twelve per cent (12%) by weight of milk fat, and the acidity shall not exceed three-tenths (3/10) of one per cent (1%)."

Thus it will be seen that the statute of the state of Pennsylvania provided that ice cream shall contain at least eight per cent of milk fat, except under certain conditions in which it shall contain six per centum.

In the state of Iowa it was provided that a product offered or exposed for sale as ice cream shall contain at least twelve per centum by weight of milk fat.

The validity of these statutes of the respective states was questioned. In both cases the statutes were held to be constitutional by the state courts of last resort.

An appeal was taken from the decisions of the state courts, which appeal finally reached the United States Supreme Court. Arguments were made and decisions were handed down in the two cases, the principles involved being the same, under date of December 4, 1916, Mr. Justic Brandeis delivering the opinion of the court.

The cases were argued together and the assault made upon the state laws was to the effect that the statutes in each state, prohibiting the sale of ice cream containing less than a fixed percentage of butter fat are invalid under the Fourteenth Amendment, the Supreme Court or Court of Last Resort in each state having held its statute constitutional, and the question consequently presented to the court as to whether the enactment in each state was an enactment under the police powers, or whether such enactment was in conflict with the powers delegated to the National Government by the Constitution or in conflict with the statutes enacted thereunder.

Incidentally your attention is called to the fact that thirteen states have by similiar legislation set 14 per cent as the minimum; five states 12 per cent; only eight states having fixed a percentage as low as Pennsylvania.

It was argued on the part of the appellants that to require ice cream, in order to be legally salable, to contain some butter fat is a regulation so unreasonable and arbitrary as to be a deprivation of property without due process of law and a denial of the equal protection of the laws.

In support of this contention the appellants set forth that

> "The ice cream of commerce is not iced or frozen cream. It is a frozen confection—a compound. The ingredients of this compound may vary widely in character, in the number used and in the proportions in which they are used.
>
> "These variations are dependent on the ingenuity, skill and judgment of the maker, the relative cost at a particular time or at a particular place of the possible ingredients, and the requirements of the market in respect to taste or selling price."

It was set forth that some ice cream is made of only cream, sugar and a vanilla flavor; another ice cream by adding the whites of eggs, and according to some formulas vanilla ice cream may be made without any cream or milk whatsoever; for instance by proper manipulation of the yolks of eggs, the whites of eggs, sugar, syrup and the vanilla bean. All of these different compounds are commonly sold as ice cream, and none of them is necessarily unwholesome.

Appellants contend that as ice cream is shown to be a generic term, covering all of the commodities described, the term as used does not necessarily imply the use of dairy cream in its composition, and it is arbitrary and unreasonable to limit the ice cream of commerce to that containing a fixed minimum of butter fat.

The court said:

> "The facts show that in the absence of legislative regulation the ordinary purchaser at retail does not and cannot know exactly what he is getting when he purchases ice cream. He presumably believes that cream or at least rich milk is among the important ingredients; and he *may* make his purchase with a knowledge that butter fat is the principal food value in cream or milk.
>
> "Laws designed to prevent persons from being misled in respect to the weight, measurement, quality or ingredients of an article of general consumption are a common exercise of the police power . . . fraud or mistake can be effectively prevented only by prohibiting the sale of the article under the usual trade-name, if it fails to meet the requirements of the standard set.
>
> "Laws prohibiting the sale of milk or cream containing less than fixed percentages of butter fat present a familiar instance of such legislation. . . . This Court has repeatedly sustained the validity of similar prohibitions."

The court then calls attention to the fact that it was especially urged on the part of the appellants that the statutes are unconstitutional because they do not merely define the term ice cream, but arbitrarily prohibit the sale of a large variety of wholesome compounds theretofore included under the name ice cream, and then the Court adds:

> "The acts appear to us merely to prohibit the sale of such compounds *as ice cream*. Such is the construction given to the act by the Supreme Court of Iowa, *which is of course binding upon us*."

The court then adds that

> "The conviction here under review was for selling the 'compound' as ice cream, so that we are not called upon to determine whether the state may in the exercise of its police power prohibit the sale even of a wholesome product, if the public welfare appear to require such action—and if, as here, interstate commerce is not involved,"

And calls attention to the cases of Powell vs. Pennsylvania, 127 U. S. 678, 685; and Schollenberger vs. Pennsylvania, 171 U. S. 1, at page 15.

It is to be noted that the court specifically states in its opinion as follows:

> "We are not called upon to determine whether the state may in the exercise of the police power prohibit the sale even of a wholesome product and if, as here, interstate commerce is not involved."

The first reference given by the court is the case of Powell vs. Pennsylvania, 127 U. S. 678. The opinion in that case was handed down in April, 1888. It sustained the finding of the court of last resort of the state of Pennsylvania on the theory that the enactment was an exercise of the police power and did not in any way conflict with any U. S. constitutional provision or with any law passed thereunder, using these words:

> "If that statute be not in conflict with the Constitution of the United States, the judgment of the Supreme Court of Pennsylvania must be affirmed. . . . It is scarcely necessary to say that if this statute is a legitimate exercise of the police power of the state for the protection of the health of the people, and for the prevention of fraud, it is not inconsistent with that amendment; for it is the settled doctrine of this court that, as government is organized for the purpose, among others, of preserving the public health and the public morals, it cannot divest itself of the power to provide for those objects; and that the Fourteenth Amendment was not designed to interfere with the exercise of that power by the states. . . . It is also contended that the Act of May 21, 1885, is in conflict with the Fourteenth Amendment in that it deprives the defendant of his property without that compensation required by law. This contention is without merit, as was held in Mugler vs. Kansas. Upon the whole case, we are of opinion that there is no error in the judgment, and it is, therefore, affirmed."

It is, however, to be noted that there was a dissenting opinion in this case written by Mr. Justice Field, too long to be quoted here, but from which I have taken the following excerpt:

> "The right of property in an article involves the right to sell and dispose of such article as well as to use and enjoy it. Any act which declares that the owner shall neither sell it nor dispose of it, nor use and enjoy it, confiscates it, depriving him of his property without due process of law. Against such arbitrary legislation by any state the Fourteenth Amendment affords protection. But the prohibition of sale in any way or for any use is quite a different thing from a regulation of the sale or use so as to protect the health and morals of the community. The fault which I find with the opinion of the court on this head is that it ignores the distinction between regulation and prohibition."

Your attention is called to the fact that the statute in Pennsylvania under discussion in the case above referred to was a statute prohibiting the manufacture and sale of oleomargarine. Contrasting this case with Schollenberger vs. Pennsylvania, 171 U. S. Reports, gives food for thought. In this case an original package or tub of oleomargarine was sent into the state of Pennsylvania and there exposed for sale. The decision in this case was handed down in May, 1898, ten years subsequent to the decision in the Powell case.

The facts were as follows: The defendant brought into the state of Pennsylvania an original package of oleomargarine and exposed it for sale. Under the decision of the court of last resort of Pennsylvania its sale was a violation of the statute. The defendant was proceeded against and a trial court directed a judgment to be entered for the defendant. The case was taken by the commonwealth to the Supreme Court of the state, where, after argument, the judgment was reversed and judgment was entered in favor of the commonwealth. The defendant took the case to the Supreme Court of the United States and that court in its opinion, rendered by Mr. Justice Peckham, held that the law of Pennsylvania was unconstitutional as to this particular package, and, among other things, the opinion said:

> "The legislature of the state has the power in many cases to determine as a matter of state policy whether to permit the manufacture and sale of articles within the state or to entirely forbid such manufacture and sale, so long as the legislation is confined to the manufacture and sale within the state. Those are questions of public policy which, as was said in the case of Powell, belong to the legislative department to determine; but the legislative policy does not extend so far as to embrace the right to absolutely prohibit the introduction within the limits of the state of an article like oleomargarine, properly and honestly manufactured."

The court was careful to distinguish this case from the case of Plumley vs. Massachusetts, in which case an original package of oleo was involved which had been brought into the state and sold in violation of the laws of the state of Massachusetts, but in that case one additional fact was placed before the court, to-wit: that the oleo was colored to imitate butter and the court held that it was in simulation of another product and that the state had a right under its police power to prohibit the sale of a simulated or counterfeit product. This decision was upheld by the Supreme Court so that the distinction in the two cases seems to be that under the police power a state may prohibit the sale of a counterfeit or imitation but may not prohibit the sale in the original package of a genuine, wholesome product. In the Schollenberger case the court said in distinguishing:

> "We think that what Congress thus taxes and recognizes as a proper subject of commerce cannot be totally excluded from any particular state simply because the state may choose to decide that for the purpose of preventing the importation of an impure or adulterated article it will not permit the introduction of the pure and unadulterated article within its borders upon any terms whatever."

There was a dissenting opinion in this case written by Mr. Justice Gray, with whom concurred Mr. Justice Harlan, in which appears the following:

> "The necessary result of the decisions in the Powell and Plumley cases, and of the reasoning upon which those decisions were founded, and by which alone they can be justified, appears to us to be that each state may, in the exercise of its police power, without violating the provisions of the Constitution and laws of the United States concerning interstate commerce, make such regulations relating to all sales of oleomargarine within the state, even in original packages brought from another state, as the legislature of the state may deem necessary to protect the people from being induced to purchase articles, either not fit for food, or differing in nature from what they purport to be. . . . and that, if the legislature is satisfied that oleomargarine is unwholesome, or that, in the tubs, pots or packages in which it is commonly offered for sale, it looks so like butter, that the only way to protect the people against injury to health, in the one case, or against fraud or deception, in the other, is to absolutely prohibit its sale, it is within the constitutional power of the legislature to do so."

In 1904 a decision was handed down by the Supreme Court of the United States in the case of McCray vs. United States in which the prevailing opinion was written by Mr. Justice White, who at that time was an associate justice and now chief justice. In this case was involved the question of the taxation of oleomargarine and in concluding his opinion Mr. Justice White said:

> "Let us concede that if a case was presented where the abuse of the taxing power was so extreme as to be beyond the principles which we have previously stated, and where it was plain to the judicial mind that the power had been called into play, not for revenue, but solely for the purpose of destroying rights which could not be rightfully destroyed consistently with the principles of freedom and justice upon which the Constitution rests, that it would be the duty of the courts to say that such an arbitrary act was not merely an abuse of a delegated power, but was the exercise of an authority not conferred. This concession, however, . . . must be without influence upon the decision of this cause for the reasons previously stated; that is, that the manufacture of artificially colored oleomargarine may be prohibited by a free government without a violation of fundamental rights."

It would seem from a review of these cases that if a state acts within and under its police power for the purpose of protecting the public health or to prevent fraud and deception; that in so doing it will not necessarily offend the Constitution of the United States, but if the prohibition is not under the police power but runs against a wholesome product which is not deceptive in form or a counterfeit and interferes with the sale in interstate commerce it will be held to be invalid.

In the cases under discussion, to-wit: the ice cream cases, the statute seems to have prohibited, not the sale of the commodity, but its sale as and for ice cream unless it contain certain percentages of certain ingredients. This did not prohibit the sale of the commodity buts its sale under a given name. This is tantamount to a regulation of the sale of that commodity and the court has held, as I interpret the decision, that such action is within the police power of the state and its constitutionality is to be measured by the State Constitution and, therefore, its final decision is by the court of last resort of the state; that such action in no way offends the National Constitution, consequently raises no question upon which the U. S. Court can take action.

President Farrell: Gentlemen, this is a very interesting paper. The decisions of the Supreme Court of the United States and also some of our states are subjects of much interest to us. The discussion on this subject is to be led by Commissioners Barney of Iowa and Foust of Pennsylvania. We will be glad to hear from them if you have anything to say. We will first call on the Commissioner from Pennsylvania, Mr. Foust. (*Applause.*)

DISCUSSION OF MR. FLANDERS' PAPER.

Mr. James Foust: Mr. Chairman and Gentlemen, the Pennsylvania case concerned ice cream shipped from Buffalo, New York, to Corry, Pennsylvania, to a retail dealer who sold it out by the saucer and quart. One of our agents purchased a quantity of the product and delivered same to our chemist in the regular way. We convicted the defendant in the Erie County Court, they made a motion for new trial and arrest of judgment, court overruled their motion, writing a barnstorming opinion, fortifying his position, case appealed to the Superior Court, which sustained the verdict and the law. An appeal was then taken to the Supreme Court of Pennsylvania; said court following the position taken by the Superior Court. An appeal was then taken to the United States Supreme Court. I want to differ just a little with Commissioner Flanders, because the question of standards did not come up in the oleomargarine cases. The ice cream opinion handed down was cited by our Superior Court week before last in which the lower court's ruling was reversed and the court declared Section 18 of the Cold Storage Act unconstitutional for the reason that it had no right to place a time limit for the storing of products, and then prevent them from being sold for human consumption when they were wholesome and no part of them unwholesome, and the Act setting up a time limit was unconstitutional because the food was wholesome and fit for consumption.

In the opinion recently handed down the Chief Justice of the Superior Court cited this ice cream decision, where the Legislature had a right under the police power to fix a standard, and the standard was within the constitution when it was so fixed and set out in the Act of Assembly.

There we have something that tends toward what I would consider real uniformity; something that will be helpful and effective.

If our Standards Committee will just go along and make fair standards—I do not mean that anything unfair has been done—and enact their standards into the National Food and Drugs Act, the states can then conform to the national law. In this way we will get real uniformity.

I do not know how that would appeal to the Standards Committee, but our ice cream decision is far reaching on that point, and goes beyond the decision cited by Commissioner Flanders with reference to the oleomargarine cases in the Pennsylvania courts, as well as of the United States Supreme Court. We have not a very high standard.

I do not believe that the United States Supreme Court had any jurisdiction to hear the ice cream case, and I contend that they had no jurisdiction; no more than the courts of Jerusalem had. That we had a perfect right to establish, in Pennsylvania, what the food product should be, we had a perfect right to establish what the standard should be; we had a right to say whether it should finally be allowed within our state, and as long as the products were shipped from one state to another, as in this case, the national law lost its jurisdiction. When the original container was opened, and it was sold out to the consuming public, it became subject to the laws of Pennsylvania, and within the decision of our courts, which was sustained by the Supreme Court of the United States.

I think on the question of the ice cream decision, upon the point of fixing and designating a standard, it is very far reaching. I did not see the paper book in which the Attorney General of Iowa presented the case, and I have no doubt it was well presented, and that the Attorney General was thoroughly familiar with the subject, and they were very much pleased with the argument, and with the attention given to both Attorney Generals by the Supreme Court.

To my mind, we have a right to designate a standard, regardless of whether the food is wholesome or whether it is unwholesome, but if we prevent the sale of a wholesome product by setting up an arbitrary standard, such a law would be unconstitutional. A justice of the Superior Court quoted a sentence of the Keven case, that these laws should receive liberal construction; one that would fully and effectually carry out the purpose of the enactment. Any one following Pennsylvania decisions knows that never was a Food Act declared unconstitutional. Our courts are far ahead of the courts in New York in standing up for food laws and then sustaining them.

There is one point in this ice cream decision that we ought to remember for it is going to come up. We have a milk standard, we have an ice cream standard, we have a vinegar standard, and all these standards have been sustained and strengthened by the ice cream decision recently handed down in the Iowa and Pennsylvania cases.

President Farrell: Mr. Barney, do you wish to say anything?

Mr. W. B. Barney: I do not know that I can add a great deal to what Commissioner Foust has said in connection with the splendid review that Commissioner Flanders made of this subject. I will say, however, that the last three or four years that case has consumed as much of my time as any other case we have had in Iowa, and I believe that this decision of the Supreme Court is far reaching, from the fact that I believe it does establish that we know we can enact standards.

I said before this decision came out, if it was not favorable to the state of Iowa, I did not know where we would land.

You might be interested in just a little way to hear how this case was started in Iowa. I want to say it was not entirely on account of the people eating ice cream there, or the public, but it was largely due to the fact that we had numerous complaints from the manufacturers, and in the investigation of those complaints we found that some of the manufacturers were making cream that only contained about five-eighths of one per cent butterfat. Now, the men making a cream to sell anywhere near the Federal regulation of fourteen per cent did not have very much to do to get a cream, but how long could they stand that sort of a deal with the fellow making cream at five-eighths of one per cent, and they said to me, "What can you do to protect us?" I said, "We will try to get an ice cream law," and the law originated in my department, and the reason I asked for twelve per cent was that I wanted to be just a little bit liberal, and I thought possibly that fourteen per cent was a little high, and I felt that twelve per cent was very fair, and I have not changed my mind in any respect on that subject.

I do not contend that we always get it up to twelve per cent, but I will say that in taking something like eighteen or twenty samples during the last few weeks in Iowa we only found one below twelve, and some above eighteen per cent, and I want to say further that if this law was put up to the ice cream people to have it repealed, I do not believe that they would have it repealed. I was thinking that probably they would ask for a standard up to ten per cent, and I do not know that I would object too much to ten per cent. Yet, I believe that it gives the Commissioner a little more leeway to have a pretty good, strong standard.

With all due respect to my friend from Pennsylvania, and my friend from Illinois, with eight per cent standards, I do not think that is high enough. I do not think that they get eight per cent. I know we did not always get twelve per cent cream in Iowa, and when you get down as low as eight per cent, or lower than that, which I am pretty sure they do, your standard is getting down too low. I know that they got down lower than eight per cent from samples that I picked up and tested which were shipped from Illinois. I know it runs around in some cases as low as four or five or six per cent, and we prosecute our people, our restaurants, hotels and others for selling a product of that kind, but, of course, we cannot go to Illinois to prosecute any restaurant man, or druggist, who sells that kind of a product.

I am sure that our ice cream men would not ask for an appeal of this law, because they think it is a good thing. Our increase last year was pretty nearly 100 per cent in the amount of ice cream sold in Iowa. I do not claim that this is entirely due to the fact that we had a standard, and it was fairly well lived up to, but it was partly due to that fact, and it was also due to the fact that we had a very warm summer in Iowa. We did not have any days as we had since we have been in Atlantic City, and meeting in this nice, cool place, that we are told so much about, but we did have some very warm days, and we increased the trade in ice cream by one hundred per cent.

The ice cream men are well satisfied with the standard, and while they were making somewhat of an effort to have me removed when we had this fight, I am going along with them in fine shape now, and have not any better friends than I have among the ice cream men. We are getting along just as well as if we had not had the trouble.

I am glad we started the case, because I am glad of the results, and I am sure that they are very much pleased with the decision.

Mr. James Foust: Mr. President, I want to add just a word. Our case originated in precisely the same way. The ice cream manufacturers in northwest Pennsylvania appealed to me that they were shipping ice cream over from New York State away below our standard, and taking their trade away from them, and they asked me if I could give them some relief. This case was brought largely because of the appeal from the manufacturers, and I want to say that I always attend the Ice Cream Manufacturers State Convention in Pennsylvania, and they are coöperating with us, are in hearty accord with our law, and would not think of asking to have it repealed.

Mr. George L. Flanders: In referring to the comments of my friend from Pennsylvania I desire to call his attention to the fact that the courts of each state render decisions based upon prior decisions by that court and under the constitution of its own state. If he desires to compare decisions in different states he should first compare constitutions of the two states and prior decisions under them involving the same principles. In the cases under consideration the court did not establish the right of a state to create standards but on the contrary held that the fixing of the standards did not in any way violate the Constitution of the United States or statutes passed thereunder, and that, therefore, it was a question under the police power and, therefore, a matter for the state courts to decide; the National Government having no police power.

When a state law enacted under the guise of the police power conflicts with the Constitution of the United States, or a law passed thereunder, it presents a question which the United States courts can consider. Take for example the question involved in McDermott vs. Wisconsin, 228 U. S. 115. The United States Court acquired jurisdiction in this case because the Wisconsin law prescribed a label for corn syrup and prohibited all other labels or markings whatever in the following words: "The mixtures or syrups designated in this section shall have no other designation or brand than here is required. . . ."

This statute prohibited the package having upon it branding or marking which the United States laws or regulations required to be there. The court held that a state legislature cannot impair legislative means provided by Congress in the Federal statute for the enforcement thereof. In other words, the conclusion to be reached from the ice cream cases and the Wisconsin case is to the effect that when a state law enters the legislative realm or domain of the National Government then the national courts can consider questions involved in litigation under such statutes and pass upon them.

In drawing state statutes one should know and recognize the limits upon state power; should know the extent of the powers of the National Government and should keep within bounds. If this is done then an enactment by a state within the realm of the police power for police purposes will not be in conflict with the powers granted to the National Government nor the laws passed thereunder and much litigation will be prevented.

Mr. Benjamin L. Purcell: I would like to ask these gentlemen how they get cases up on appeal? Most of the state laws make a violation of the food laws a misdemeanor, which puts a man's liberty in jeopardy once, and the constitution forbids its being placed there the second time. How can you get the case upon appeal?

Mr. W. B. Barney: We brought our case in the Justice's Court. The justice decided in our favor, and they appealed to another court. It was a civil action.

Mr. Benjamin L. Purcell: Most of the states' statutes make this a misdemeanor, and there is no appeal from the decision of the state court.

Mr. James Foust: We always know our justice. We watch out for that feature of the matter, and suppose that a justice of the peace does dismiss the case, you can go and start it right over again before another justice.

In some of the large cities, there is a rule of court that you have to get permission from the district attorney's office, but we have never met that, but we have often met with other obstacles. I had twenty-two liquor cases some years ago brought by our agent in a certain county. The justice was under the influence of liquor and said, "I will hear one of the cases and we will decide all the other cases on this one case, next Tuesday." I said, "We want a few minutes to talk the matter over." We went out in the hall. I said, "This man is not willing to decide these cases and we will take them out of his hands." They were of the opinion that I couldn't do it. But we went back into the court room and I said, "How much are the costs in this case," and he counted them up for some time, and then said, "The costs are $4.63." I then asked, "How much are the costs in the other twenty-one cases?" and he figured them up and said, "$71.00." I said, "Give me a receipt for these costs and I will pay them and withdraw all the cases, including the one you heard, so you do not need to decide it." I heard the lawyers whispering among themselves as to whether we had the authority.

You can withdraw a case before it is heard, and after it is heard, but the best way is to know your justice before you bring the action.

Mr. George L. Flanders: I think the proposition resolves itself into this: It is a question of practice in your own state. The practice in any two states is not necessarily alike.

Mr. Benjamin L. Purcell: We do not know what the result would be if we undertook to make our laws apply differently than to all alike. We have never had occasion to test that feature of it, but I do not think it is going to hold. As far as we are concerned, we include in the charges the specific act to which it applies, but taking the general subject of food laws, our law makes violations a misdemeanor, and we have really no appeal from the justices decision, although he may have been shown, yet somebody else may have seen him.

President Farrell: Is there any further discussion on this subject?

Mr. W. C. Kirk; attorney for Armour & Company: I want to ask Mr. Flanders a question which is of personal interest to me, and I believe it will be of interest to a number of the Commissioners. From personal discussions with Mr. Flanders at different times, and from listening to his talk at the convention, I have come to regard his opinions on constitutional questions very highly, and I am sure that as the result of his review of the ice cream cases, as well as the Plumley, Powell and Schollenberger cases, and others, I feel that he must have formed an opinion on the question I desire to ask.

The Supreme Court of the United States in the Schollenberger case held that a state could not arbitrarily prohibit the sale of a wholesome article of food, properly labeled, etc., where such article had moved in and was a legitimate article in interstate commerce. The court held that the state could not thus interfere with interstate commerce in such manner, and this doctrine has been extended in the McDermott case. Now, inasmuch as the Supreme Court said in the ice cream cases that they were not called upon to pass on the question whether a state, in the exercise of its police power, could arbitrarily prohibit the sale of a wholesome article of food where interstate commerce was not involved.

I want to ask Mr. Flanders if he is not of the opinion that the Supreme Court would hold that a state could not arbitrarily prohibit such goods being sold if the question were squarely presented to them.

I might say that it is my opinion that the original package doctrine has been pretty well exploded, as that doctrine was laid down in the early tax cases, and that a right to ship into a state, without a corresponding right to sell such product even after the original package of interstate commerce is broken, is rather an empty privilege.

In other words, when an article is a legitimate subject of interstate commerce, as in the case of wholesome foods, properly labeled, without any element of fraud, etc., it is not a proper exercise of the state's police power to prohibit the sale of such article after the package of interstate commerce is broken.

Another point I would like to call attention to is that the Supreme Court in the ice cream cases said the statute only prohibited the sale of ice cream as such. Mr. Flanders emphasized this, and I think it is the important element in those cases. It bears on the question of standards which this Association and you gentlemen are promulgating from time to time. In this day and age of the world new products are being invented and new processes are being worked out. These products are often variations from old-style products which your definitions and standards cover. They may be substitutes for what are regarded as standard products, yet if they are sold under some other name they are proper subjects of sale, even though they deviate materially from the definition or standard adopted for the article which the new product substitutes.

Therefore I think that the matter of standards is one for very careful consideration, and the standards should be such that they will not interfere with such new products which may be of tremendous importance from a food conservation standpoint.

These last remarks are aside from the question that I wanted to ask Mr. Flanders, however, which is if he does not think the Supreme Court would hold a state statute invalid which prohibited the sale of a wholesome food product, should the question be squarely presented?

Mr. George L. Flanders: I think the gentleman is partly right, and partly wrong. I do not think that the Supreme Court in its decision said that the state might create a standard, but they have said that the creating of this standard does not violate the United States Constitution. Therefore we have nothing to do with it. On the question of the National Government holding that a state could not arbitrarily prohibit the sale of certain goods—you want to ask—

Mr. W. C. Kirk: I want to ask you whether in your review of those cases you were not of the opinion that the Supreme Court would hold that a state could not arbitrarily prohibit such goods being sold, if the question were squarely presented to them? The question is whether such action on the part of the state would not be held to be unconstitutional by the Supreme Court of the United States, if the matter were presented in a square, precise manner.

Mr. George L. Flanders: I have some doubt about it, but am inclined to the opinion that in the matter of intrastate commerce it would be a question entirely for the state government; that the holding by the United States Court would be in such a case as it was in the ice cream cases.

The powers of the National Government are conferred powers. That government can exercise no power except that which is conferred. You will remember there are seventeen specific powers given the United States Government to exercise and that an eighteenth paragraph provides that that government may make all laws which shall be necessary and proper for carrying into execution the foregoing powers and all other powers vested by this constitution in the Government of the United States or in any department or office thereof. I know of no power among those conferred that seemingly would give that government the power to say that a state might not under its police powers regulate or prohibit traffic in any given commodity, providing such laws did not discriminate in favor of the people of that state. I am of the opinion that if this question were presented to the Supreme Court of the United States it would be liable to say that such action was a matter for the state under its police powers and that the National Government has no control over it, and that the decisions of the state court of last resort would be final. I am, however, of the opinion that the state court of last resort would be apt to hold that it was beyond the state legislative power to prohibit the sale of a healthful, wholesome food product, although its sale might be regulated. If it should not so hold, then you can readily see that the state might, if its legislative power saw fit, prohibit the sale of bread, butter, potatoes, apples or any other commodity. To give you a case in point—in 1884 the legislature of the state of New York passed an act in which appeared the following prohibition:

> "No person shall manufacture out of any oleaginous substance or substances, or any compound of the same, other than that produced from unadulterated milk or cream from the same, any article designed to take the place of butter or cheese produced from pure unadulterated milk or cream of the same, or shall sell or offer for sale the same as an article of food."

The constitutionality of this enactment was challenged in the courts. The court of last resort of the state said:

> "The provision of the Act of 1884 prohibiting the manufacture or sale as an article of food of any substitute for butter or cheese produced from pure, unadulterated milk or cream is unconstitutional, inasmuch as the prohibition is not limited to unwholesome or simulated substitutes, but absolutely prohibits the manufacture or sale of any compound designed to be used as a substitute for butter or cheese, however wholesome, valuable or cheap it may be, and however openly and fairly the character of the substitute may be avowed and published."

Another case in point in the same state is the case of the People vs. Biesecker, reported in 169 N. Y. 53. The court, after reviewing a number of cases that had been decided, said:

> "From these cases the following propositions may be deduced:
>
> "First, the legislature cannot forbid or wholly prevent the sale of a wholesome article of food.
>
> "Second, that legislation intended and reasonably adopted to prevent an article being manufactured in imitation or semblance of a well-known article in common use and thus imposing upon consumers or purchasers is valid.
>
> "Third, that, in the interest of public health, the legislature may declare articles of food not complying with a specified standard unwholesome and forbid their sale.
>
> "However, these principles, like most legal principles, are true only within limits."

President Farrell: Gentlemen, this is a very interesting subject. You cannot tell what is going to happen to you in court until you are through with the case. Secretary Newman wishes to make an announcement before we adjourn.

Secretary Newman stated that Dr. Chas. E. North would address the convention on the following day and that Mr. Herbert C. Hoover would talk to the members on Friday.

The meeting adjourned until Thursday at 10 a. m.

FOURTH SESSION.

THURSDAY MORNING, AUGUST 2, 1917.

(*This session was held in Keith's Theatre.*)

President Farrell: We are very much pleased in having with us Dr. Charles E. North, Director of the North Public Health Bureau of New York City, and I have no doubt his illustrated lecture on the essentials for clean milk production will be very interesting to all the members. I take great pleasure in presenting Dr. North. (*Applause.*)

THE ESSENTIALS FOR CLEAN MILK PRODUCTION.

Dr. Charles E. North: Mr. President, ladies and gentlemen, my object in appearing before you is to see whether I can bring out clearly one or two principles which I believe should be used as the basis of the action of administrators of our states and cities in the control of municipal milk supply. It seems to me there has been too much vagueness and looseness about the ideas which the public officials use in administering the laws which they have and in modifying those laws for the control of public milk supplies. I believe that that vagueness is unnecessary, and I think that the time is ripe when we can see very clearly what the principle is which we should use as a basis in our activities in the control of health.

As I conceive it, there is one object which every honest public official needs to have in mind in connection with such an article of food. The first is the question of safety. We used to have ideas regarding safety which made it necessary for public officials to stop up any channels of danger through which milk is used, and since pasteurization has become to be so widely recognized the matter of safety is something which has been narrowed down to a proper supervision by our public official over pasteurization, which I think is now recognized as undoubtedly the best means of safeguarding the bulk of our milk supply. When I say bulk, I mean that portion of the supply that is sold to the masses of the people at a reasonable price.

Whatever we may feel regarding the drawbacks to the use of an artificial remedy, such as pasteurization, yet it has been tried and never found wanting. Still, I think the other systems of minimum safety are still exposing us to sudden and unexpected dangers which have resulted in so many of the disastrous epidemics which are now matters of record, especially in recent years. The epidemics always occur, but they are not always of record, and many of the epidemics and epidemics of infectious diseases which humanity is heir to are put down as dispensations of Providence, which are nothing more nor less than dispensations of an improper method of keeping statistics.

As far as safety is concerned outside of pasteurization, the public official is limited to such work as can be done by the veterinarian or the physician, and we all know the veterinarian and the physician are only human, after all, in spite of their titles. The disease of cattle and the disease of human beings in many cases will escape the most rigid inspection by the veterinarian or the physician, and it is hard for the physician to tell when the patient has a sore throat, or it is hard for the veterinarian to tell when the cow has a sore udder, and yet the milk that comes from that sore udder may infect the milk supply of an entire dairy or an entire milk dealer's supply, and cause an epidemic in the entire community.

Those of us from the West know what happened in Wisconsin; those of us from the East know what happened in Boston, from one of the finest sources of milk supply in America, simply showing that these things are only words, after all, and that the bacteria ignore the officials or the name of the milk as long as they have a way to get access to it. I believe that pasteurization is the only life insurance that we can get, and I think that it should be applied for the sake of the consumer and of the milk.

Outside of the question of safety, the other principle which our public officials have to consider is the question of decency or cleanliness, and that has got to be one of the biggest questions, next to pasteurization, and if those things are adopted there is no reason why any community should have an unsafe milk supply, but the matter of pasteurization has been abused by our milk industry in many cities, and the result is, in many instances, those who have pasteurized milk have a supply that is unclean. I won't mention any names, but I believe you know to whom I refer. We cannot remove this stigma from us unless we resort to means to safeguard ourselves in the matter of cleanliness and decency. The question arose how that could be done, and I am very glad to say that it can be done very easily through the application of the bacterial test and through the operation of bacterial laboratories.

I want to tell you gentlemen in connection with the State Department that the bacterial laboratory has been misrepresented to such an extent that the industry and public officials believe that it is very expensive and a very difficult matter to establish a proper bacterial laboratory, and I want to tell you, and my pictures will help me to demonstrate this fact, that it is not an expensive matter, that it is not a difficult matter, but, on the contrary, is a very easy and a very inexpensive matter to operate these bacterial laboratories.

Dr. North then gave his illustrated lecture.

Mr. R. G. Soule of the Merrill-Soule Co., Syracuse, New York, also gave a moving picture lecture on Manufactured Milk Products.

After the moving picture lectures the convention adjourned to the Breakers Hotel and resumed the session.

President Farrell: Gentlemen, we are rather at a loss to know just what to do now. The committees are not ready to report and Mr. Street informs me he does not really think it necessary for him to discuss Mr. Soule's moving picture talk on Manufactured Milk Products. That will be up to the meeting. If you wish to have Mr. Street say a few words on the paper on Milk Products, we will call upon him. What is your pleasure?

The convention manifested a desire to have Mr. Street address it.

President Farrell: I am sure they would like to have you say a few words, Mr. Street.

Mr. John P. Street: I do not know at all what Mr. Soule's paper consisted of, but there is one feature that he might have touched upon that I think is rather interesting, especially in view of some of the agitation that is going on at the present time as to the effect of the so-called vitamines contained in milk, due to the various manufacturing processes. I read in one of the trade journals recently an argument that was used to bolster up the contention to the effect that the heating of the milk destroyed the vitamines, and the use of alkali to counteract the acidity greatly diminished the vitamine activity.

These are evidently two points for thought: Dr. Osborne, who has done a great deal of work in this connection, was asked what had been his experience with these two points, and, while I am not using this for advertising purposes at all, he said that he had used the Merrill-Soule dry milk powder, and he found that he got practically the same results as with fresh milk. I was anxious to hear what method Mr. Soule used, but I assume he must have used the heat method.

The second point, in reference to the use of alkali in checking the acidity: Dr. Osborne has done work on that subject, and, while the results are not conclusive, he authorizes me to state that there was no evidence so far that neutralization had any serious effect on the vitamines in milk.

Those two points, Mr. Chairman, I thought might be of some interest to the members of the Association.

President Farrell: Mr. Street certainly has a habit of pushing things along, all right. (*Laughter.*) Mr. Soule, secretary for the Credentials Committee, is ready to present the Credentials Committee's report, and we will hear from him.

REPORT OF THE CREDENTIALS COMMITTEE.

Mr. A. M. G. Soule, Secretary of the Committee: Your Committee on Credentials respectfuly submit the following named persons as those entitled to represent their respective states and departments as voting members of the twenty-first annual convention of the Association of American Dairy, Food and Drug Officials:

Alabama—J. M. Moore.
Arkansas—John H. Page.
Connecticut—Frank H. Stadtmueller, John P. Street.
Florida—R. E. Rose.
Georgia—P. A. Methvin, W. C. Dumas.
Illinois—J. B. Newman.
Indiana—H. E. Barnard.
Iowa—W. B. Barney.
Kentucky—J. O. La Bach.
Maine—A. M. G. Soule.
Maryland—W. W. Randall.
Michigan—F. L. Woodworth, M. J. Smith.
Minnesota—J. J. Farrell.
Missouri—E. L. Barnhouse.
Nebraska—Otto Murschel.
Nevada—S. C. Dinsmore.
New Hampshire—C. D. Howard.
New Jersey—W. G. Tice.
New York—G. L. Flanders.
North Carolina—W. M. Allen.
North Dakota—E. F. Ladd.
Oregon—J. D. Mickle.
Pennsylvania—James Foust, William Frear.
Rhode Island—Frank A. Jackson.
Tennessee—Harry L. Eskew.
Virginia—Benjamin L. Purcell.
Wisconsin—George J. Weigle.
Wyoming—Maurice Groshon.
United States Department of Agriculture—Carl L. Alsberg, B. H. Rawl, P. D. Cronin.

President Farrell: You have heard the report of the Credentials Committee. What is your pleasure?

Mr. R. E. Rose: I move its adoption.

The motion was seconded.

President Farrell: It has been moved and seconded that the report of the Credentials Committee be adopted as read. Is there any discussion? If not, all those in favor of the motion will please signify by saying "Aye." Contrary, "No." The motion is carried and the report is adopted.

Mr. R. E. Rose: Mr. Chairman, I would like to make an oral report as a member of the Auditing Committee. I have gone over the Treasurer's papers and bills, and so forth, and have found them correct and properly entered.

Mr. Frank A. Jackson: I move that the report of the Auditing Committee be adopted.

The motion was seconded.

President Farrell: You have heard the motion that this report of the Auditing Committee be adopted. Are you ready for the question? All those in favor of the adoption of the report will signify by saying "Aye." Contrary, "No." It is adopted.

Gentlemen, is there anybody in the room among the Commissioners, or among the visitors, from whom you would like to hear? I see Mr. Lucius P. Brown, Director of the Department of Foods and Drugs of the Department of Health of New York City, is here. It is his first appearance at this convention and I am sure you would all like to hear from him. He is a gentleman whom you all know and I think it would be very appropriate to call upon Mr. Brown for a few remarks. (*Applause.*)

ADDRESS OF MR. LUCIUS P. BROWN.

Mr. Lucius P. Brown: Mr. Chairman, ladies and gentlemen, it is unnecessary for me to state that when I come to a meeting of this organization, even though I am as some of you called me yesterday when I first appeared here a rank outsider, I feel as if I were at home. I have fought, bled and died in this cause, the same as the most of you men, when fighting, dying and bleeding was in order and absolutely necessary. (*Applause.*)

Since I have transferred my field of work from the state to the city, and especially to such a big place as the city of New York, I have felt as though I have gotten into a work which is as big as state work. As a matter of fact, the organization which I represent in New York City is as big, as that of any of the states, and bigger than a lot of them. As a matter of course, the problems that present themselves in taking care of the food for five and one-half million people are bigger than most of you have to handle in your own jurisdiction, and I trust you will understand that I say that without any disposition to suggest that any of them are small.

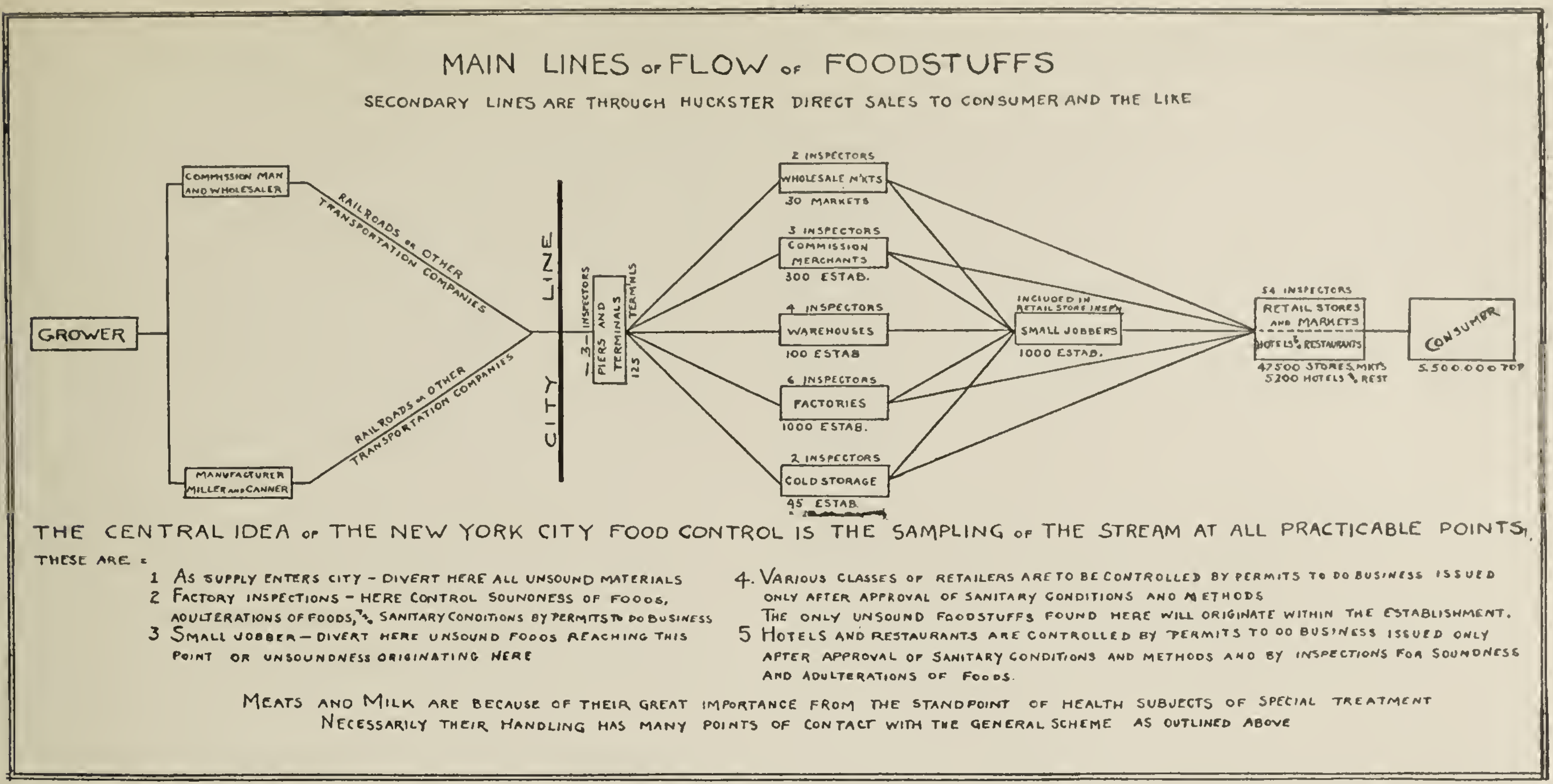
The difference between state and city work is, as I see it, that city work admits of much more intensive application than does state work.

It may be of interest to you to know just what the problems are in New York City and how they are attacked. I think one of the best ways to accomplish that is to endeavor to describe to you the organization. The Bureau of Food and Drugs is one of the largest bureaus of the Health Department. It is divided into five divisions: The Division of Food, the Division of Drugs, the Division of Milk Inspection, the Laboratory Division and the Clerical Division. There are about 185 people on the pay rolls normally in that bureau alone. There are 90 field inspectors for food in the Food Division. There are 32 in the Milk Division. But it would take more time than I am prepared to give, or you would be willing to permit me to have, if I undertook to describe all of this work in detail.

The problem is attacked, so far as foods are concerned, which is, of course, the biggest end of the work, by organization. I am going to hold this chart up. I do not know whether you will be able to see it or not; I do not know how many of you can see the lines, but I hope that many of you can. We meet the food as it comes across the city line. Here is the city line (*indicating*); here is your carrier. The foods come in from all directions, from manufacturer, miller and canner. It is transported by the transporting lines from those men to the city line, and when it comes across the city line it comes into the railroad terminals. It so happens in New York City, and I presume the same condition is true in most of the other large cities to a greater or less degree, that the terminals are concentrated. Most of the food comes across from the Jersey shore to a certain part of the city known as the Lower West Side. Wherever they come, we have inspectors on the job who meet the foods as they come in and see that they are sound before they enter the city. That is the biggest end of our work, to see that sound foods may be supplied. Here are your railroad piers, and here are your terminals (*indicating*). Here are your wholesale houses, your commission houses, your merchandise houses, your warehouses, your factories, cold storage plants, abattoirs and your small jobbers.

We attempt to make no distinction between the jobber and the wholesaler, because they are both furnishing their goods to the retail stores, and markets, and hotels and restaurants, and even to the consumer. We have, as a result of a census we made a couple of years ago, a pretty good idea of how many of the various establishments we have to control. For instance, we control 45 cold storage establishments, of all sizes; 35 wholesale markets; 47,500 stores, markets and other retail establishments, and about 5,200 hotels and restaurants. The piers and terminals number about 125. We do not attempt to cover all of these all of the time, but our men on the Lower West Side go from one place to another as the food comes in. About two years ago we made compilations which we gathered from a newspaper, the *New York Journal of Commerce*, which now enable us to know where and when these foods come in, and we concentrate on the places where most of them do come in, so we get at least 90 per cent efficiency in that particular thing.

The central idea of the New York City food problem is the sampling of the food stream at all practical points. This



THE CENTRAL IDEA OF THE NEW YORK CITY FOOD CONTROL IS THE SAMPLING OF THE STREAM AT ALL PRACTICABLE POINTS.

THESE ARE:

1 AS SUPPLY ENTERS CITY – DIVERT HERE ALL UNSOUND MATERIALS
2 FACTORY INSPECTIONS – HERE CONTROL SOUNDNESS OF FOODS, ADULTERATIONS OF FOODS, & SANITARY CONDITIONS BY PERMITS TO DO BUSINESS
3 SMALL JOBBER – DIVERT HERE UNSOUND FOODS REACHING THIS POINT OR UNSOUNDNESS ORIGINATING HERE
4. VARIOUS CLASSES OF RETAILERS ARE TO BE CONTROLLED BY PERMITS TO DO BUSINESS ISSUED ONLY AFTER APPROVAL OF SANITARY CONDITIONS AND METHODS
THE ONLY UNSOUND FOODSTUFFS FOUND HERE WILL ORIGINATE WITHIN THE ESTABLISHMENT.
5 HOTELS AND RESTAURANTS ARE CONTROLLED BY PERMITS TO DO BUSINESS ISSUED ONLY AFTER APPROVAL OF SANITARY CONDITIONS AND METHODS AND BY INSPECTIONS FOR SOUNDNESS AND ADULTERATIONS OF FOODS.

MEATS AND MILK ARE BECAUSE OF THEIR GREAT IMPORTANCE FROM THE STANDPOINT OF HEALTH SUBJECTS OF SPECIAL TREATMENT
NECESSARILY THEIR HANDLING HAS MANY POINTS OF CONTACT WITH THE GENERAL SCHEME AS OUTLINED ABOVE

Sketch of system for control of food-supply as used by the Bureau of Food and Drugs, Department of Health of New York City.

is first done with all foods entering the city by a special squad of inspectors, who look after all food as it enters the city. The factory inspection is done by a special squad. The soundness of the food is controlled, and proper sanitary conditions are brought about by requiring that permits be had in order to do business. The various classes of retailers we expect to control later on, as soon as this ghastly war is over, by permits to do business, and in this manner we hope to bring about a food supply that is approved by sanitary conditions, and produced under sanitary, hygienic methods, so that only sound food will originate within the establishments themselves. The hotels and restaurants are now controlled by permits to do business, issued when they apply to do business.

From the standpoint of health special precautions must be taken to properly safeguard our food products in human consumption. We have been enabled, because we have our work concentrated in a comparatively small area, to systematize this work, although, I suppose, not much better than any inspection is able to do it, but as I look back it has occurred to me, and it has been rather forced upon me, that a great deal more system can be put into the state work, at least more than I ever put into the state work at any time, and I presume that same criticism applies to all of us. If any gentleman is interested in this proposition, I will be glad to give him copies of these charts. Here are our chemical laboratories, where we make our chemical analysis in milk inspection. We inspect those products for infectious diseases. Here we have our milk terminals in the city. We have our ice cream plants products all tested for bacteria. We have our pasteurization stations, and all those things which are shown here. I shall not attempt to go through all of them, but I shall be glad to give anybody who is interested anything that they want in the way of information along these lines.

The size of the problem there may be of some interest. I was particularly interested in the two illustrated lectures this morning, and while I am on my feet I want to suggest to you that the old-time score card, which we fellows have been brought up, more or less, to regard as a fetich, can be looked upon as a dead cock in the pit. In fact, I am inclined to believe that any score card is a dead one. I do not see how it is possible for you to correlate the condition of your barn with the quality of your milk. Your test must be the quality of your milk itself.

Dr. North has told you that remarkable results have been obtained by systematic action. We have checked up Dr. North's results, and we are prepared to endorse what he says, but those things we know—take, for instance, the Rockdale proposition that he talks about; we know he gets results that he says he does, and he shows us the figures to substantiate these facts. I do not know, by reason of the fact that the dairyman has been brought up with this straight barn record for score card purposes, whether we are going to be able to change him or not. The dairyman is a slow-moving gentleman, like all farmers, but it is quite certain that emphasis will be laid only on the question of the quality and wholesomeness of the product that is delivered in the future, and that is going to be done very soon.

I could tell you very interesting things if I had time to present the milk situation. We have got three angles, the Health Department, the distributor and the milk producer. We have got coming from the big men about two million quarts of milk that we have got to look out for, about twenty-five per cent of it being in the hands of one concern now. We have got the producer to take into account, and the producer is a man that is making his power felt just now, and I am glad to see it. But I am not going to say that there is not any value in oleomargarine, because there is. We might as well be honest right now. The farmer has been getting the hot end of it for the last few years, his methods of handling his product have been vastly improved, and he is entitled to a square deal; and, when you get down to the question of milk, it is a particularly cheap food at any price prevailing up to the present time. Whether the present prices are justified or not is a matter of economics that we cannot go into.

The reactions of the farmers in this particular case have been singular. We have talked to them some little time about the change. One of the large distributors came to me the other day and said, "Will you allow us, as a temporary measure, to put the emphasis of inspection on the product only?" I said, "Go to it." They went and had a talk with the farmers. Then they conferred with the Dairymen's League, which is the governing body in such cases. The contract called for a bonus of fifteen cents on good barn scores. Then they got the farmers together, and they had a nice little meeting, and it looked as if everything was all right and very satisfactory, but the farmers later had a meeting, and came back at the producers and said, "Gentlemen, we are getting fifteen cents extra now, and we do not know whether we will get it under the new card or not, and we won't go back of the fifteen cents, and you have got to follow out the contract as it is written now." That means that it lasts to the first of October only. After that time we expect that there will be no particular trouble about getting this change made, because it is in favor of the producer.

There is another suggestion that may be of particular interest to you gentlemen. I wonder how many of you realize that the dry milk proposition is going to be the solution of the city milk supply problem. The city of New York gets some milk from a distance of 450 miles away, and it pays freight on about 80 per cent of dead matter. If you use water that you get from the city waterworks you will find it very much cheaper. The present reconstructed dry milk has a somewhat peculiar taste. You may have to educate your customers to like it, but refinements in manufacture will probably get rid of the taste, I think that probably this will help to solve our milk supply problem for New York in a large measure.

There is another matter in the city of New York which is giving a large amount of concern, and that is the question of conservation. Those of you who have studied your work in the states can today largely apply your energies to production. No doubt, it is somewhat outside of our province, but in any event you can organize, and get an organization which can be used to forward production, and you ought to have been in the forefront in this conservation of food. I do not know how many of you have interested yourselves in this proposition. I was just wondering how many of you here are helping in the conservation and production of foods in your states. Will the Commissioners who are positively interested and in the forefront in this movement kindly hold up their hands?

(Six of the delegates manifested that they were in the movement.)

That is altogether too small a number. Your governors should have called on you first, and I think if you have not been in a position (and I hope you will pardon me for saying so), if you have not been in a position where you have been called on, that there is something wrong with either you or the governor, and you know best where it is, and it is up to you. Get busy and make your influence felt, even at this late date. I have been up against that proposition, and we are working in our city in that line. It was some little time before our own city government realized we could help in this. It is up to you men. Do not sit still and say because you have not got it before now, that you won't get it if you do get to work, but get busy and see that you are doing your bit. Make this known through the newspapers, and your governors, with a hope that finally through your legislatures you will get there. You all ought to be familiar with the situation and working in behalf of it, because you are the people who ought to know just what this food proposition is in your respective states.

In the city of New York the conservation of foods—and in fact the same condition is true in all other cities—is a thing that we must look after very carefully, and we get a very large amount of material which we must dispose of. Our actual condemnation of food is an average of about two million pounds per month for the twelve months. It was not very long after the terminals squad was put into operation that we discovered that there was a lot of good food going to waste for economic reasons, because the owner, in considering the question, was unable to decide as to whether or not it was going to profit him to separate the bad from the good. About a month ago some women came to me and said, "Mr. Brown, we see you are destroying daily a large lot of food on the piers." I said, "Yes, it is a shame, and at this time I do not know how to get around it." They said, "Will you help us to get hold of the material if we can get voluntary labor and save that stuff?" I said, "You are just the persons I am looking for. The latchstring is on the outside and the place is yours, and you can have whatever you want." They went to work, and they have been working now a month on the proposition, and the results they are getting are most excellent.

The way they work is this: You know when goods are shipped and they are abandoned by the consignee or the owner, the railroad company takes hold of them, and if there is no salvage in it for the railroad on an economic basis, the product will usually go to the dumps. When the two persons thus interested, the consignee and the railroad, decide that there is no money in the transaction for them, those women step in and take it off the receiving terminal, and everything that is good, they can or sell at a very low price to people who live in their particular neighborhood. When I tell you that 24,000,000 pounds is only a small part of the total food supply for the city of New York, you can very readily appreciate that this salvage does not add a great deal to the total food supply, for New York, it is estimated, uses between four or five billion pounds, and of course the women can save only a small part of the condemned food. Every one of the commissioners can help their particular locality by promoting such movements as this in the conservation of foods. This work at the terminals likewise enables us to ascertain what causes spoilage in foods and I have endeavored to show by this other chart what we have been able to do in that connection. *(Applause.)*

Mr. James Foust: What percentage do you have for winter and what percentage during the summer?

Mr. Lucius P. Brown: It depends on whether we are at war or not. The percentage has been larger in the winter than in the summer, mostly in connection with imported goods. There are a variety of causes which are responsible for this condition, such as submarines, accidents to vessels and other matters; in other words, all the innumerable delays incident to getting goods from abroad, chiefly from Spain and the western islands. Bad boats is another thing that produces a great amount of difficulty. Great Britain has embargoed the importation to that country of a great deal of this material, consequently when the first year's embargo was put on there was a great attempt made on the part of the Spanish and western island growers to save their goods by shipping to New York City, but the venture was not very profitable.

There is another thing that I think we as food commissioners and food control officials should absolutely do. There must be some way and it ought to be by concerted action and in concert with other food control officials, because there are other officials, gentlemen, than you state men who are now doing good work, as you all know. The city of Cleveland is doing as good work as any food control unit in the world, for instance. You must by concerted action with other officials undertake to mobilize your forces for the aid and benefit of the Hoover organization, because, like men of vision that they are, they have got men who are going to exercise every endeavor to help our nation, and what is best and most important of all, they have got men with a very deep patriotism. They are putting in their time for nothing except for the good of the whole country. We may be advisers to this organization if we are just as sincere and as unselfish as they are, and only in that case. We can advise as to what they ought to do, and we can be of utmost aid to the whole country; and that is what we ought to be as good Americans and as good citizens. And I think one of the things you can do here, if you want to do it, is to mobilize your agencies for that purpose and to lay out, if you choose, a plan of action by which you can help that organization to attain what they want to accomplish.

These are just a few of the things that I wanted to tell you about in connection with my own work locally. I cannot go into every feature of it in detail. I would be very pleased to have any of the commissioners who anticipate going to New York to call at the department and we will show you everything we have. We will turn the place over to you and it will be yours. They say that in New York competition is more highly developed than in any other field in the world, and there is a very large element of truth in that statement. The pressure for help there and the absolute necessity for getting the most out of every minute has forced us to standardize our work most thoroughly. The consequence is we have got all kinds of office procedure that will be of advantage to any man who is doing food work. There is a great deal there that I know we can give you that you have not got. We do not take any special credit for it, because we realize we are using such methods merely because we have had to do it.

There is another thing. If you gentlemen come to New York, in addition to turning you over what we have in our office we will show you all the different things to be seen. We will show you the machinery used in the distribution of our products; we will take you at two o'clock in the morning to the piers and almost show you the potatoes that you eat for breakfast—the stuff comes in in thirty and forty carload lots and these different articles are distributed to the consumer at his place in the morning. If enough of you gentlemen can come up there tomorrow and be there Saturday morning we will organize a trip beginning about one o'clock Saturday morning, and we will go down to the West Side to the distributing terminals. We will also show you our pasteurizing plants which you all know about. We will make a morning of it, so to speak, getting home with the milkman and see the way in which the food is distributed in this enormous governmental organism.

I think I have said about enough. I hope you will pardon me as to making suggestions to your own states, such suggestions as might be advantageous to your own states, but I think that is something we are liable to forget in the round of routine work, and we must rise to the occasion in this national emergency. There is another thing which most of you, or a great many of you do, and which has been of the very greatest value to us. We have what is called in the Health Department Advisory Councils. There are Advisory Councils on contagious diseases, infant welfare, Advisory Councils on foods, consisting of 50 or 60 members, and others who are interested in the whole subject. We apportion our councils amongst so-called uplift societies—I do not mean to reflect upon them at all by referring to them by that name, but that is the best name I can find for them—we apportion our advisory councils between them, and thereby we get both aspects of the matter, and we have gotten the most excellent help from people having to do with the trade. The average dealer in foods is just as necessary as the average food Commissioner. He is just as good a citizen, and just as patriotic, and he is just as honest as the average furniture dealer, or the average man of any other group, and if you will put him on his honor and tell him you are not playing poker with him, and not trying to see which can jockey for the best position, if you will use honest representations, you are going to get most valuable responses, and I want to acknowledge that we have had from the trade in New York the most valuable sort of aid, and through their assistance we have been able to get over smoothly very many rough places.

Are there any questions that anyone would like to ask?

(*No response.*) (*Applause.*)

President Farrell: We enjoyed Mr. Brown's address very much, and I hope that you will all avail yourselves of his invitation and allow him to show you how they handle foods in New York City. If there is nothing further to come before the convention at this time, we stand adjourned.

Thereupon adjournment was taken until Thursday afternoon at 4 o'clock.

FIFTH SESSION.

THURSDAY AFTERNOON, AUGUST 2ND, 1917.

The meeting was called to order by President Farrell at 4:00 P. M.

President Farrell: We will now have the pleasure of listening to an address on "The Use of Inferior Ingredients; Cheap Substitutes—Permission, Restriction, Labeling," by Mr. Harry L. Eskew of Tennessee. (*Applause.*)

THE USE OF INFERIOR INGREDIENTS AND CHEAP SUBSTITUTES.

Mr. Harry L. Eskew: Mr. President and Gentlemen of the Association, food control being such a broad subject in itself, must of necessity be discussed from several angles to thoroughly analyze its various phases. The subject which I will present for your consideration would at one time have been looked upon as one of economic value, but in reality it is only one phase of the broad subject of food control, and may properly be discussed as such.

With your permission would state that in explanation as to the subject of this paper, I refer to simple wholesome articles which have food value which can be produced and sold at a less cost per unit food value than the staple articles which are now used and in the past have been used, which is pure wheat flour, meat, sugar, etc. By such substitutes and ingredients I refer to rye, barley and corn flour used by themselves or in combination with each other or wheat flour and substantial articles of that nature, not imitation concoctions of little or no food value but of little cost that might be incorporated with real food.

Without exception all of us enjoy eating, unless unfortunately we have long abused our digestive system by unwise eating and have fallen heir to the natural heritage of such practice, and even then we enjoy eating itself and our displeasure appears only as an after effect. Instead of being a purely necessary function of the body, to continue and promote life, eating is with all of us a form of enjoyment which is looked forward to every day. Even those poor in worldly goods who must practice economy and deny themselves pleasures will allow themselves what luxury they can in their meals. This tendency is as old as the world itself. Wherever people have become prosperous they have shown it in the character of their eating, their feasts, banquets, etc.

America with her wealth of natural resources, developed by master minds and the free will, ingenuity and aggressiveness of its working people, has seemed always to have been prosperous, at least none of us here can remember when she was not, when compared to the old world and her working people. This prosperity has shown itself in the eating by everyone, in whatever walk of life, from the millionaire to the man with only one meal as a certainty to which he might look forward. We have been pleased to call this our "Standard of Living." We have selected our bill of fare from that which "WE WANTED"—I put that in capital letters—rather than what "we needed" to eat. It is the pleasure side, not the necessity side, feature of our desire to eat that prompts us in selecting the items that go to make up our meals. We are looked upon by the rest of the world as great wasters of food—and we are.

Dietitians have come to recognize two factors in discussion of relative value of articles of food, palatability and its real food value, that is its digestibility and calorific power. Am fully convinced that we have overemphasized the use of palatability in dealing with invalids and others who are temporarily indisposed. This is of prime importance and it does play a part in the nutrition of the normal man, but we have been pleased to give it too much importance in the case of healthy people, because it coincided with what we really "WANT."

Now we are confronted with the necessity of sacrificing a part of our pleasures, and particularly those which have grown to be a part of us—I have particular reference to eating.

The recent rises in food prices have affected us all, we have noticed it and grumbled, but have really done little more, because so far money has been plentiful enough, so we simply paid a little more but have not denied ourselves, at least not to any great extent. We, as a people, must, however, do something more, and we, as food officials, are in a position to lead and point out the way.

It has long been recognized that many articles not used as human food to any large extent in this country would be valuable as such and would be much cheaper than those now employed. They may not be as pleasing to the taste but can sustain the body just as well and should be developed and their place on the bill of fare would soon compel recognition. It is unfortunate that we do not have accurate information as to the procedure by which the people of Germany are utilizing for human food articles that we have never so employed to any appreciable extent, furthermore we are unable to know just the results that they are obtaining.

Much is being written and said about cheap articles of food and the public is in a state of mind where they will now try anything at least one time, in the way of food, and the time is most opportune for the development and trial of such products. Doubtless many new products of this nature will be placed on the market and those already on the market will be given a great deal more prominence. Those of real merit will become fixtures and those faulty will fall by the wayside.

I am convinced that as food officials it is our duty to encourage the production of these substitutes or I may say what we have in the past considered substitutes. It will be our duty to pass on them from time to time as they appear.

There is one condition with which we are often confronted in the state of Tennessee, and I imagine each and every one of you have the same experience in greater or less degree. We find food exposed for sale that is not wholesome, for instance, a lot of spoiled can goods, wormy dried fruit, or tainted meat. The dealer argues that he does not have a "high class trade," mostly colored people, etc., and that the goods are plenty good enough for them, as he sells them below the regular market price it is a bargain for the poor people and should be permitted as a boon to them.

Personally, I consider this argument of no weight whatever; it is not cheap food in reality, being spoiled and unwholesome, it is expensive. We uniformly deny this argument. The food, whether of high price or low, should be strictly wholesome. It may often be difficult in a particular instance to decide whether or not a certain lot of food is wholesome, but if it is, it can be sold to high class trade or to poor class trade, and if it is not, it should not be sold to either.

There are some common plants looked upon as weeds which upon investigation are found to be useful as food. There are likewise animals of the sea and land as well that might be utilized. In the past, due to more reasonable cost and sufficient supply of the staple articles of diet, it has been unprofitable to develop many of these. Now, however, is the great opportunity for their introduction, at the same time every satisfactory mixture of commodities can be developed by scientific research and painstaking experimentation. I believe it is our particular duty to foster such enterprises. Let these products be placed upon the market frankly upon their own merits and permit them to stand or fall according to their real merit. There should be no evasion or equivacation on the part of promoters concerning their products. As before stated the times are opportune and the people ready, nay, anxious, to investigate. The newspapers and magazines are constantly submitting articles on food conservation, cheaper food and utilization of articles that may be converted into food. Less advertising than in the past would be necessary, permit the manufacturer of food products to state frankly and plainly the character of his product, and the people will give it a fair trial. I am sure that if this is permitted and encouraged the value of each preparation will be tested on its own merit. Developments along these lines will impose upon food control officials the duty of passing on many new points as well as old ones, from a different angle. Considerable more deliberation than ever will be necessary. In all of this it will be necessary to distinguish clearly between real, honest, creative effort and sham.

I am, however, taking it for granted that my remarks are in line with what all of you have been thinking of for some time past. I realize that it is impossible at this time to go into many details or to cover the matter conclusively. I have endeavored to hit upon a basic starting point, the premise from which our discussion might proceed. From my point of view I think our attitude should be to foster the development of a cheap food supply made up of wholesome and nutritious articles, possibly less pleasing to the palate but qualified to properly nourish the human system and in so doing bring into use as human food, articles that have in the past served a less valuable purpose, or no purpose whatsoever.

In the meantime it would be absolutely necessary to keep a sharp lookout for fakers and products without merit that may be advanced and advertised under false colors. I would not feel that I had completed this paper without a word or two for this latter class of products that we must guard against.

Unfortunately, like the poor, we always have with us a coterie of food adulterators and misbranders. I am pleased to say that food officials have always received and can depend upon the real support and coöperation of most firms engaged in food supply trade, yet all of us know that there are a small few—who do not wish to coöperate—some may sham and attempt to appear to do so, but we know that there are those who at heart try to stay "Within the Law" as that term is popularly used and yet violate it to their own advantage. A still smaller number who over-ride the law rough shod and use every means to evade the law until they can procure enough money to enable them by hook or crook to stay out of the clutches of the law.

It is doubly unfortunate that this time of high prices is their opportunity to do "their bit" for themselves and to the detriment of the public generally. Am impressed with the thought that it devolves upon us to investigate more fully than ever in order to detect such law violators with more than usual certainty and when clearly detected to show them no mercy. It is certainly bad enough to rob the people in ordinary times but now when a new order of things is about to take place or, to be more definite, is taking place the people should know that the guards of their food supply are fully alive to the situation. The people being impressed with this fact will have confidence in the newer products and will feel that they are not merely shams and a new imposition upon them. To this end this class of food fakers, who at heart are criminals, should be more speedily than ever brought to justice, and in my mind be a justice tempered with little mercy.

Our laws allow quite a latitude in labeling food mixtures and distinctive articles of food. Am convinced that for permanent development and present needs as well, we as officials should encourage simple and frank branding. In times past possibly there was more use for fancy and distinctive names, but in the present times it appeals to me that the people will be more ready to accept a new mixture and try it fairly when they know what it contains than they would if it were placed on the market under some copyrighted or high-sounding name. The housewife would try oftener and harder to make good bread out of a mixture of wheat, rye and barley flour if she knew it to be such, than she would if it were exploited under an extravagant title giving no hint as to its makeup. This is only one instance, but it is typical. It appears to me that at present the housewife is more awake to the situation than any one else. In my state we see them trying most every new thing that comes to their notice; we see housewives in the kitchen canning and drying fruits and vegetables especially that not only have never before been attempted by them but have never even seen it done or given the procedure a thought before this year. This is only an index to their readiness to accept and develop a new menu and a cheaper, wholesome, nutritious diet. The housewives are the health officers and food control officials of the home, and we, as public food officials, can do well to take up her spirit and make it possible for her to succeed.

It is said that out of any great catastrophe there comes some good. One of the benefits which we shall readily see after the war will be the cheaper food supply and the use in a rational way of many so-called inferior ingredients and cheap substitutes which really, in merit, are not so inferior or cheap, but at present are so, in comparative price, because of lack of development and trial. The degree of permanent good and permanent use of these articles of food will depend to a large extent upon how well and how actively we fullfil our responsibility in this direction. We must keep in mind all the time the permanent result as well as the present need.

I may say in closing then that we as individuals will be called upon to make sacrifices in our personal affairs. It, no doubt, will be easier for us to give up various forms of amusement than to relinquish the gratification of our palate. It is not intended that we should go improperly nourished but merely give up the tickling of the palate and indulge in good, simple, wholesome food and learn to use the unaccustomed articles for food which will maintain us just as well as the old stand-bys, whose supply is becoming limited.

While this is before us as individuals it is our duty as officials to deeply consider this matter and do our part in the development for the nation of a supply of such food. This will require more than usual discernment on our part and encouragement of real creative effort and the rigidly stamping out of illegitimate practices.

I have discussed only what we may do in an administrative capacity. In the way of research and experimentation, our laboratories should take up this work. We have a field limited so far as laboratory research is concerned only by what our states have provided for us in the way of facilities. However, I take it that the phase of the subject which we are discussing is from an entirely administrative viewpoint and the discussion of possibilities in our laboratories will come properly elsewhere.

The writer of this paper, while advocating strongly the proper use of substitutes and cheaper ingredients, at the same time wishes to place himself on record as hostile to the custom in the sale of some products, of either giving no information to the consumers as to the presence of the cheaper article or the substitute, or on the other hand of representing the product to be of a higher purity or value than it really is. I have in mind one commodity which is sold very extensively in the South—self-rising flour.

Some of these mixtures evidently are made of the cheapest grades of material and frequently run high in sulphate of lime, as a result of a low grade phosphate used.

Mr. Harry L. Eskew: Mr. President, I desire to offer the following resolution:

> "Whereas, The necessity for conserving the food of the nation during the present crisis is deeply felt by the members of this Association; and
>
> "Whereas, The use of additional materials and substitutes promises an additional supply of food and freedom from hunger, not only for ourselves, but for our allies; and
>
> "Whereas, A misunderstanding seems to exist in some quarters as to the legal right of the manufacturer to make such additions or substitutions,
>
> "Therefore Be It Resolved, That this Association is heartily in favor of such additions and substitutions and in the addition of other materials intended to render the product more nutritious or more effective in its food purpose, provided, such addition or substitution is so plainly stated on the label as to avoid deception."

The foregoing resolution was referred to the Resolutions Committee, who later presented the following report:

> "The ground covered by this resolution is virtually covered by the resolution tendering aid to national authorities.
>
> "This resolution will not enlighten the manufacturers as to their rights: it will only express desires which are useless if in conflict with law, and of no aid if not in such conflict.
>
> t (Signed) "George L. Flanders,
> "W. B. Barney,
> "I. H. Stadtmueller,
> *"Resolutions Committee.*

A motion to increase the Committee on Coöperation from three to five was unanimously carried.

Dr. Barnard moved to re-consider the vote on the question of referring the matter of swells in canned goods in connection with Mr. Foust's motion referring it to Dr. Bigelow and the Federal Government.

The motion was seconded and a vote called for, thirteen voting in the affirmative, and seven voting in the negative.

Mr. Purcell of Virginia raised the question of a two-thirds vote, and also the fact that a quorum was not present, whereupon a vote to reconsider was lost.

The meeting then adjourned to Friday morning, at 9:30 o'clock.

SIXTH SESSION.

FRIDAY MORNING, AUGUST 3RD, 1917.

The last session was called to order by the President at 9:30 A. M.

President Farrell: Gentlemen, will you please come to order and we will proceed with our program. We have a telegram which was sent to me yesterday, and I will ask the Secretary to read it to the members. It is self-explanatory.

> "Washington, D. C., Aug. 1, 1917.
> "J. J. Farrell, President, Dairy Food and Drugs Control Officials, in Convention, Atlantic City, N. J.:
> "Pending passage of food legislation, it seems unwise for me to make any public statement. Have consistently declined all such requests for some time. Regret exceedingly that I cannot be with you.
> (Signed) "M. L. Requa."

President Farrell: Gentlemen, you will notice that the first paper this morning is by a gentleman who needs no introduction to you whatever. The paper is Looking Backward (*Laughter*) no, I mean Forward, by Dr. Carl L. Alsberg of the Bureau of Chemistry. (*Applause.*)

LOOKING FORWARD.

Dr. Carl L. Alsberg: Mr. President and gentlemen, some days ago, before I came down here, I was reading a book in a foreign language, printed before the war, which dealt with the food administration of the various countries of the world. The opening sentence of that book translated freely was about to this effect, that in so far as food administration of the several states of the Union were concerned, and their laws, they were to be regarded as models of the world. This was written by a German evidently before the war.

I think that is an entirely just and impartial estimate of what is going on in the United States today. That it would indicate that this Association is the most important association in food administration and food matters to be found in the world; that is, inasmuch as the laws which its members have to administer are probably the best, though by no means, as we all know, perfect. So the deliberations of this body ought to be considered the world over as the most important deliberations on the subject of food administration.

I felt, for this reason, as we all here are not trailers, we are not trailing the world, but we are leading the world in this type of work, that the eyes of the world are, and have been on us in what we do, and that when peace comes again and the world will be, as I confidently believe it will be, a more unified world, with international boundaries much less important than they are today, with commissions not under separate conferences in the nations of the earth, as they are today, that the eyes of the world will be on this Association a great deal more than they have been in the past, and that what is done in this Association by us, who have been leading in this type of work for the whole world, will be watched with intense interest, and we hope that the other nations of the earth can profit and learn from what they see here.

And feeling as I do, that this Association should be the greatest of its kind on earth, I am a little disturbed as I look forward, not as I look backward, because there are some phases in our history that I know we have outgrown, as I look forward I am a little disturbed with what the future has in store for this Association, when I realize that most of us have need of more good in the United States, and particularly the intense good that this Association is capable of doing.

I am disturbed because it seems to me that we have, to put it frankly, rather been losing a little ground, losing a lot of ground among the food officials of this country, losing considerable ground, I fear, in the way the food industries look upon us, and losing some ground, perhaps, with the general consuming public.

As I look over what has been done in the last few years I do not see in the deliberations of the Association that constructive, productive work, that degree of blazing the trails, which I think we have a right to expect of ourselves, which

I know the rest of the world expects of us, and to be quite frank again, I fear, unless we do something to wake up, we are facing in this Association a very serious crisis, a crisis that is serious enough to affect the future usefulness of this Association, and the best proof that such a crisis exists, that such a danger exists, is the fact, and now I am talking in the family, that a rival for this Association in a sense has begun to be organized, and that rival is the Food Section, recently organized, of the American Public Health Association. Unless we treat this very carefully, by taking care that this Association does not go upon the rocks, we may wake up some day to find out, but too late, that the American Public Health Association has broken into the field hitherto occupied by this Association, and appropriated in the minds of the general public and the country generally the field which has been filled, and is being filled, and which should be filled, by this Association.

I wish to repeat that I think we are in this Association dangerously close to the rocks. To be quite candid, I think there are two factors that are responsible for what, I think, is the present condition of the Association. Many probably do not agree with me, but this is my personal opinion, and I give it to you for what it may be worth. One of those reasons is that we have not given an opportunity to any of the local and municipal officials of the United States to meet with us; we have not welcomed them here; we have not given them advice; we have not assisted them. They are looking for a medium of expression. They are looking for a place where they can get together and find a sympathetic atmosphere, and they hope to find it in the Food Section of the American Public Health Association.

The other reason is that we have not been master in our own house. We have permitted the Association to become the battleground of purely trade controversies. This has been the history of this Association for a good long time, and we have therefore expended an amount of energy in watching the battles in the Association or suggested by those outside of the Association, which, I think, has seriously impaired the dignity and the force and the value of the Association's worth.

We have permitted ourselves to be used, sometimes in one way and sometimes in another way, and I think these contribute to the losing of ground on the part of the Association.

I think that we should take whatever steps are necessary to put an end to this situation, and that is what I mean when I say that we have not been masters in our own house.

Just exactly what the best means may be of putting an end to such a situation is a question that I am not able to answer, but one of the methods that can be used is to have executive sessions, in which we can as one large family talk over all our matters, and in which we can express ourselves as we all express ourselves, one to the other privately.

I think that unless we do this we shall lose ground, we shall lose dignity, we shall lose influence, we shall lose force.

I hope that you will seriously consider what steps may be taken to deal with that very serious situation.

Please do not misunderstand me in this direction. I do not take the position that an opinion outside of this Association should not be considered, but I contend that it should be given by this Association the weight that the judge or jury gives to evidence, and it should not be allowed to have any weight or influence on our deliberations beyond the weight of evidence.

I may be entirely wrong, but if not, if I read the signs aright by what I see looming up in the future, I see a very dangerous crisis ahead for this Association, a crisis which comes mainly from these two conditions: The fact that the municipal and local officials, a very large body of men, have not been taken under the wing of this Associaiton. They are a very large body of men, and they contain among their numbers many very able men. They have tied up with the American Public Health Associaiton.

The American Public Health Association is a very large, a very powerful, a very influential body; a very high-grade organization. The American Public Health Association expects some day to develop a Department of Health in Washington, and it is entirely possible that the whole situation will be seriously affected for this Association, purely through the dissatisfaction and lack of consideration which the municipal health officials and local officials believe that they have been subjected to.

The other thing is that we have got to get away from dealing with, or allowing ourselves to be influenced by trade controversies; that we have got to make this Association, the meetings of this Association, in part executive, to discuss matters which cannot properly be discussed in the presence of outsiders, any more than three judges sitting on the bench can discuss the decision which they are considering in chambers, in the presence of the two parties to the controversy. That is exactly what we have been doing here. We have been looking at a lot of these matters as controversies. They are not matters of controversy, they are matters of business judgment, and controversies and feelings should not be allowed to enter into them. Those two things are, I think, absolutely necessary, if this Association is not to go on the rocks. I believe that this Associaiton is a much more powerful factor for good, has been and should continue to be, than any other association in the country or of its kind in the world.

I am intensely anxious that this Associaiton shall be energetic in its efforts, and shall be vigorous in its endeavors to promote the industry and the intense interest of every individual should be an influencing factor, because I know what this Association can do, and I know what the individual members of the Association want to do, but somehow I believe that matters have become snarled up, and it seems to me that it is time for us to take stock and see what the states can do to unsnarl the Association.

I may be wrong in what I say. I may be indiscreet in what I say, but I have felt that the time was at hand when somebody should say what I have said, badly as I have said it, but very frankly and very sincerely, and I felt perhaps I was the person to say that, because I hope you gentlemen know by this time what the attitude of the Bureau of Chemistry is towards this Association. The Bureau of Chemistry, while I have been the head of the Bureau, has endeavored to sustain and help and assist and push on the work of this Association, without in any sense imposing or permitting my subordinates to exert pressure or dominate in any way the freedom of this Assocation or its liberty of action. That has been our attitude. Our attitude and prerogatives are those of members of the Association, not any more nor less than those of any other individual here, and it is on that theory I have begun the work, but I wish to suggest to you that you seriously consider the suggestion in regard to taking in the local and municipal city people, and making this Association a place for everybody who has an official status, who holds a commission, who has an appointment, be he a commissioner or an inspector or connected with the state or city board of health, has an opportunity to be here and make his influence felt in assisting this Associaiton. How, or what, or when this can be done, or whether it is a wise thing to do, is a matter I would just commend to your serious consideration.

That, gentlemen, I think covers what I had to say this morning. (*Applause.*)

Secretary Newman: Regarding the representatives of the municipalities and other food control officials in state and Federal Government, was it your idea that they would have the freedom of the convention and the floor privilege, or that they would be voting members?

The constitution, you understand, limits the voting membership in this Association, and until somebody offers an amendment, these people could not have other than the freedom of the floor.

Dr. Carl L. Alsberg: What I wanted to do was to raise the question that the Associaiton seriously consider the advisability, and whether it was advisable or not, to change the constitution in that respect. That is a matter of judgment. No man's judgment on that question is better than any other man's judgment. It is not a thing that should or would be decided right off the reel. I simply suggest that the Assocaiton some time or other, not necessarily now, not necessarily at all if the majority do not think it is worth while, consider it. We have this mass of men who are disgruntled. They are our friends and should be here.

Secretary Newman: Were they ever members of the Association?

Dr. Carl L. Alsberg: They never were.

Secretary Newman: There may be some misunderstanding in connection with the constitution, but from my own experience in reading the constitution, I never assumed that they were entitled to any voting privileges. Since I have been Secretary, just to relate what happened in my own experience, notices of this meeting have been given to the papers and other notices have been mailed to the names of the people that were filed with the Credentials Committee. There was no other provision for notifying anybody else other than the state and Federal food control officials who are listed in the annual report as members of this Association, and as members of this organization they were invited to be present, and there was no other provision for inviting anybody else other than the ones designated as members, and there was no provision to invite anybody else, municipal officials, trade representatives or whoever else they might be. If they read that notice in the papers or heard of it and did not avail themselves of the opportunity to come here as other representatives of the trade have done, I do not think that this department is to blame for that.

Dr. Carl L. Alsberg: There is no misapprehension about the constitution. The constitution is perfectly clear. They could only come here because they have been invited. There is no provision for inviting them specially. They can come here and take part in the program. They can come in just the same as any other self-respecting citizen is welcome. It is not a question of what we did in the past. We cannot regain anything lost in the past. The past is closed. But the question is, do we want to continue in that past? That is the situation. The question is whether we want to continue in the present course. That is the question I raise, not the question, "Have we done wisely in the past?" That phase of the situation is closed. We could not do anything else in the past. That is what we voted to do, but, do we want to continue in that course? It may be the best thing to do, but I am just simply raising the question.

Secretary Newman: I want to bring it out, because some of the younger members here do not know exactly what the constitution says on this subject.

President Farrell: I think, gentlemen, that in opening up the question as Dr. Alsberg has, it is rather to put the thought before us that it is about time that we should broaden our convention, our work in the future, and perhaps in that way take in a body of people who are organizing to have the entire field in this work. As you well know, it is going on in every state. We have long-established boards of health and public health, and in some departments they are doing good work, and it has been a question in some of the cities whether it would be considered advisable to put food control work entirely under the state board of health, and the question that should be given real thought is if this body, as a national body, cannot really broaden its influence by taking in such membership, by inviting them, by so amending the constitution, if necessary, but I do not believe that a national organization can very well take in any municipal bodies or one of the municipal bodies who happen to be connected with the board of health that control the food through the ordinances of that municipality. We could, however, extend invitations to them. We have got just a few moments more for expressions from the various states.

Mr. James Foust: Mr. President, as I understand Dr. Alsberg's remarks I believe he intends them for the membership to think over and to consider the proposition very carefully. There is no necessity for haste in the matter and I trust that it will not open up anything here; I know that he did not intend it that way. There is no necessity for action at this time. Let us all think it over carefully. I do want to say this, that just what he said about the health question is one that every state has on hand now and the question was raised in our last legislature; a bill was presented, and there was such tremendous opposition to it that they could not even get the bill through the committees. It was put on the postponed calendar to a later day. The food control people believed that this belonged in the agricultural department solely. In a state like Pennsylvania, where we have 220,000 farmers, it is a very serious proposition to them and they wanted it kept in the Department of Agriculture, and in attempting to put it into the Department of Health they camped on the "Hill" and would not stand for it. I believe it is a local matter for each state, and this particular question which was raised by the remarks of Dr. Alsberg is one we ought to think over very soberly. We should think over his suggestion very seriously and not let anything go out from here that would mar the pleasure and the profit of this meeting. I want to quote what James J. Hill said in his lifetime, and I think they are very beautiful lines. He said, "Get your people around you once a week and talk over things that are not wrong."

President Farrell: Would some of the other states like to say a word on this topic?

Dr. W. W. Randall, of Maryland: In order to bring this thing to a head, would it not be wise for this organization to instruct the Resolutions Committee to present a resolution dealing with such alterations as may be necessary in the Constitution, to include what, in their judgment, would be the best extension of the membership of this organization? It is clear that a year would have to pass before anything could be done under the Constitution by way of amendment, but if we took action now we might be in a position to deal with the matter when it comes up a year from now. Consequently it seems to me that it might be well to bring the matter to a head by some such resolution.

Secretary Newman: That is my idea. If you do not discuss it at this meeting and do not make some kind of a tentative amendment you cannot adopt it at the next convention. You will discuss it between now and the next meeting, and at that meeting you will make an amendment which will be put into effect in 1919. It is a proposition of putting it up to all of the officials at this time, and in times past undoubtedly we have been in the same position. We cannot get more than one executive meeting a year. The men come in from their work; they are very busy; they meet one day and frame up a program. There is not enough attention given to it. You all know how those things are. If you do not discuss this thing, but if you just go away and say you will consider it when you get home, you will find that you will be overrun with business and you will not give it the attention you would in this room.

Personally I would like to see a tentative suggestion made that might be scheduled to come up at the next year's meeting, so, when we arrive at our convention next year, if there is a majority we can adopt or reject the proposition in 1918 and then be ready to go along. If not, it will be 1919 before you will be able to have the amendment adopted.

Dr. William Frear: As one of the older members of the Association, may I ask your indulgence in the consideration of this point? The constructive program, the constructive possibilities, as suggested by the talk of Dr. Alsberg, are fundamental in their nature. They are not criticisms of the past. They are just suggestions of the possibility of readjustment owing to progressive movements from outside sources.

When this Association began its work, there was a comparatively small body of municipal work of this type, but as the importance of food control and health control has become more and more manifest to the people, the number of ordinances, the number of officials and the number of municipalities engaged have greatly increased and the problem of adjustment is a serious one. That is the problem presented to this Association by Dr. Alsberg, and I do not believe that any one of us can wisely solve it, even the most experienced of us, offhand. I am very sure that the plan which one of us might make would differ radically with the solution that some one else might propose. My experience in committees is that when each of us tries to prepare a solution for a particular problem, and each prepares a draft, when we get together we absolutely differ in our ideas.

I cannot hope that we would offhand reach a conclusion finally satisfactory with respect to this difficult matter, a matter on which there is something to be said on either side. My own judgment is that haste is not the important thing, but that carefully considered action is the important factor. Whatever is presented should be mature. I would hope if the Executive Committee saw before it a very large and fundamental problem that they find it possible to give more than one entire day's work to it. I would like when the time has drawn for closing discussion to see some action taken whereby consideration of this matter is referred either to the Executive Committee, or if it is deemed that that committee has too much to do, that some other appropriate committee be designated to give very careful consideration to this project, with presentation of report upon the matter at our next meeting.

If we do not solve it until 1919, notice, at least, can be given that the matter is being very carefully considered and this will have the effect of making known to our colleagues of the municipalities that we are not indifferent to the importance of their work and of the large, growing parallelism between their work and ours.

Mr. Benjamin L. Purcell: I think that the idea of broadening the scope of this National Association to include more organizations engaged in health and food work is a good movement, and as Dr. Frear said it should be considered very carefully. The work in my particular state is divided between the Dairy and Food Commissioner, who has charge of the food and dairy work, and the State Board of Health. Almost all of the sanitary work including the factories other than food and everything of that kind is in the hands of the State Board of Health, and there is no doubt but that the State Board of Health—I will go further than that and say that some of our city boards of health should be either affiliated members or voting members of this national body, particularly our state boards of health and its branches charged with the protection of the public health, largely the sanitary work and other things of that character. I would be very glad to consider the proposition to have those men coöperating with us, and I am in favor of the movement to broaden the scope of this National Association.

President Farrell: Are there any other members who wish to express their ideas upon the future of the Association?

Dr. E. F. Ladd: I just want to say that Dr. Alsberg has spoken very plainly. It is not, as I see it, a question of any past, but it is a question of the future policy of this Association. You must remember that when this Association was formed we had no municipal food work throughout the country. This has been a matter of rapid growth, and even in the smaller towns, and I think the time has come when this Association, as intimated by Dr. Alsberg, should broaden its scope and in some way reach out and take in the work of these members, the local and municipal officials. Our Association should endeavor to affiliate with those different officials in view of the great progress that is being made by the new Association which has been formed. Our Association is not keeping pace with the food work in the country. We have been dealing with federal and state work. I think that each of us recognizes the importance of such work, and I think we ought to take this into consideration and try to work it out in some way; but it wants to be worked out very carefully, either through sectional meetings, or associate members, or direct membership. All those things are vital problems to be carefully considered by whatever committee shall deal with this question. The whole situation should be worked out thoroughly and then a working program arrived at.

President Farrell: I would like to suggest that there may be a spot at home, at least, where that coöperation can be properly exercised in forwarding state and municipal food control work, and it seems to me that the states which have no need for coöperating with their municipalities are limited in that respect. We find some municipal officials sometimes that do not wish that, but it is not our fault. We are willing to coöperate with them, but they do not care to do so. If you have such a mode of coöperation in your own state, ways and means could probably be devised whereby that person or that municipality and state delegation to this body could be represented. That could be worked out very nicely.

It is true that we have very many splendid men in the country who are ambitious in health work as well as our work, and they may not take kindly, at times, to that proffered coöperation; that is where they are strong.

I know of no Association, gentlemen, that has lived the life of 21 or 22 years that could not point to some weak spots, but that is no reason why we should not be on the alert to make ourselves more useful and a more powerful organization; and that was one of the reasons why I suggested in my address that I would have some future remarks, as I had in mind at that time that this Association should have a strong box. It should be in a better position financially and it should have a state fee which is larger. The state fee should be increased because a great deal devolves upon the members and they have very little time to give to outside interests, and they should have means to conduct this Association's affairs, the same as all well organized bodies should be conducted.

Mr. J. D. Mickle: It seems to me that my understanding of this question is somewhat different from yours. As I understood it, Dr. Alsberg did not refer in his remarks to coöperation between the federal and municipal authorities.

President Farrell: No?

Mr. J. D. Mickle: He referred rather to the policies of this organization, looking toward the future. It appears that through our Constitution we have narrowed our activities down to a point where it may be detrimental to the future welfare of the Association, and we can see on the horizon that there is another great institution that is going to set us aside in the future. If this is the case we had better look ahead pretty carefully in regard to our future. That is only the history of all great bodies and of nations. Rome trusted in her power. If we confine our activities within too narrow a margin, then we will not derive the benefit that would otherwise come to us. If we are going to come to these meetings and hold deliberations among ourselves without giving any thought or consideration to the opinions of other men who are engaged in similar works, then when the future of the organization is in danger we cannot hide behind our Constitution.

If we do not take into consideration the views of larger men who are interested in the work and who are identified in a measure with us, then we are going to be set aside by their great force, and it seems the proposition is something that we should give heed to.

It appears to me that these remarks of Dr. Alsberg's are most commendable and I believe that his paper has rendered this Association one of the greatest services conceivable. I think he has done this Association great service in this convention in calling our attention to it. I also think that his suggestions should have future consideration before next year or whenever we can get to them; but let us be in shape at that time to take some action rectifying any errors that we have committed in the past, and avoiding the rocks if there are rocks ahead of us. (*Applause.*)

Mr. George L. Flanders: I used to think I knew something about the Constitution of this body. I have not seen one for several years, and I have been wondering what the Constitution really provides. My suggestion is that we should have some more copies of the Constitution printed in order that the members may know what the limitations are upon their powers and rights. A few years ago I remember that there were 200 printed. When we have a Constitution before us we can see how we shape up and then we can consider in what manner we can broaden.

President Farrell: The question is this, that it states in the Constitution that there may be amendments from time to time. If any of our members will read the Constitution and find that we are limited in any one clause of the Constitution, it is up to them to be constructive and offer such an amendment as to correct the difficulty. This has always been in line and in vogue and proper.

Mr. George L. Flanders: There seems to be an idea that the scope of the Association should be broadened, and probably there is a reason for it and probably a very good reason. After you consider the matter and should the members decide to broaden our scope, the next question is how shall it be done? The first thing you want to look at is by what means this can be accomplished. I remember when this thing came up in Detroit the great question was how broad shall it be, but the real, fundamental idea was to get together for conference, the idea being that with such influence acting together we would be able to produce laws in the different states so that there will be unison in movement and unification in enforcement.

I observe, from what I have heard here, that there is a desire to enlarge the scope of our operations, and the first thing to do is to find out what our limitations are, and in the event they are not as broad as they should be then a proper committee of some kind should be appointed to consider an amendment to the Constitution, that committee to study the situation and recommend to the next meeting.

Mr. J. M. Moore: As one who has had a rather limited experience in this great organization, I do not feel called upon to offer anything to shape its policies. I will say, however, that the suggestion by Dr. Alsberg to extend the membership of this Association to include food officials of the municipalities occurs to me as a good one. The suggestion comes from one who has had broad experience in the study of food problems, with those connected with the enforcement work, and as a member of this Association. And the suggestion is to be acted upon. However, I do not believe a constitutional amendment was anticipated and should not be offered until properly formed—after the municipal men have been consulted and the details worked out. As stated by Dr. Frear, I believe a special committee should be appointed to make necessary investigations.

While the matter of the scope of the Association is before us, I take the opportunity to digress a little and say that we are primarily administrative, and in our work of administration, investigations and revelations follow as a natural consequence. And upon the basis of careful investigations recommendations may be made by the Association. In this no special interests should be unduly served, and all eyes should be singled on the larger interests of the public. I make these statements in an effort to cover what seems to me a basis of action upon which the success of the Association largely depends, and for the reason that I have seen resolutions offered, which impressed me beyond doubt that they were instigated by commercial interests merely to annoy another or with a hope to gain unwarranted prestige from the action of the convention upon the resolution. Such resolutions have not in the past and should not in the future, receive favorable action by the resolutions committee, and I strongly believe they should go into the wastebasket without any consideration whatsoever.

President Farrell: Gentlemen, we will have to be very brief as the time is getting short. Just confine your remarks as much as possible.

Mr. F. L. Woodworth: I was going to ask Secretary Newman what the constitution provides, and under its provisions would it be possible to appoint a committee to prepare such a resolution embodying these suggestions by Dr. Alsberg. I think the committee's report would have the same effect as if that resolution was presented here. That is, I mean so that the resolution could be passed on at the next session, one year from now.

Secretary Newman: That is an excellent thought, Mr. Woodworth, and in answering your question I want to say that my own opinion is that we should appoint a committee of the four ranking members and Dr. Alsberg, making a committee of five, to consider Dr. Alsberg's suggestion, report at least progress, and that notice be given now that an amendment is coming in that report. The amendment might come or it might not. In that case it is passed, and we may act upon it. If you believe it is hasty, you can vote it down. This body, I think, can do that. You can, if you think that is a little bit risky, you can put it in the form of a tentative amendment, just for the sake of getting the thing on the calendar for next year. My idea was that we should do that, in order to protect ourselves from twelve months' loss. Then next year when we convene, if we deem it advisable to make an amendment, the amendment may be made, and by taking this action here now, we will have protected ourselves in the right to vote. The amendment does not necessarily have to reflect your ideas. It is merely an amendment brought forward to protect you after twelve months from now, if you are ready to vote on it.

Mr. R. E. Rose: I think we might just as well recognize that there is a concerted movement on the part of the Public Health Association to take over the food control work of this country, and it is a question whether it is good business policy on the part of this Association to extend an invitation to membership of an organization that is inimical to the best interests of this Association. Why do we want to extend an invitation of membership to men who we know do not want it? Let us offer them a cordial invitation to come to our meetings as they would let us go into the Food Section of the Public Health Association. If we are to be a branch of that association and if they are to dominate us in matters pertaining to food control, then I do not want it. I do not want it in my state at least. I am opposed to any tentative amendment to the constitution. As I understand the constitution, it is impossible to amend it here at this time, and then act upon it. My understanding is that you have got to amend the constitution and then act upon it at the next meeting.

President Farrell: The thought that Dr. Alsberg's remarks brought out should be properly weighed, and should probably be read over several times by this committee to see if in any way they are constructive enough to improve upon the present organization, and if they see no way, we should not have any committee. This committee can do no harm to look into the subject of improvement in any way whatsoever, and I am ready for that committee to be named.

Mr. George L. Flanders: I would like to make a suggestion, that the committee might be appointed to consider amendments to the constitution along a limited line. For instance, along the line of membership, and along the line of inviting others to participate in our annual meeting or to become members.

President Farrell: The chair is absolutely open to any suggestions that you desire to make.

Mr. George L. Flanders: I move you, sir, that a committee of five be appointed by the chair to consider amendments to the constitution as to the following corrections: First, shall the provisions relative to membership be enlarged, and, if so, to what extent? Second, shall it be amended to invite others than those who have constitutional rights to participate in its meetings, and, if so, to what extent?

The motion was seconded.

President Farrell: Gentlemen, you have heard Mr. Flanders' motion, which has been duly seconded. Is there any discussion? If not, all those in favor of the motion will signify by saying "Aye." Contrary "No." The motion is carried. I will announce that committee before we adjourn.

Gentlemen, we will now proceed with the next paper, report of the Committee on Coöperation, by Mr. J. S. Abbott, Department of State Coöperation, Washington, D. C. (*Applause.*)

REPORT OF THE COMMITTEE ON COÖPERATION.

Mr. J. S. Abbott: Mr. President and gentlemen, this business of reading the report of the Committee on Coöperation has fallen to my lot for the simple reason that there is no Committee on Coöperaiton just now. Two of the members of this committee have gone out of office since our last meeting and the only member who is put down here as still on the committee is in doubt as to whether he is still on it or not. As I am making a report of a committee that does not exist it certainly ought to be short.

By way of introduction, I want to emphasize the fact that I consider that this Committee on Coöperation is one of your most important committees. A game that can be played by a lone hand is a gamble. It is not worth playing. A man who has never learned to work in combination with other men is a pretty small potato. This Committee on Coöperation should exist in the future. That is no criticism, mind you, of anybody at all, because our constitution indicates how vacancies are to be filled, and they could not be filled.

The activity and progress of city, state, and Federal food and drug control officials toward coöperation in the enforcement of food and drug laws have been reported to you regularly through the medium of the Clearing House Letter of the Bureau of Chemistry, with which you are familiar. It is not deemed necessary, therefore, for your committee to repeat to you in this report what has already been made public.

Your committee has considered it necessary to make a compilation of the recommendations of the committee and to make such comments upon them as appear to be necessary at this time.

The following recommendations of the committee, revised from previous reports, were adopted by the Association in July, 1914:

1. That the guaranty legend, "Guaranteed under the Food and Drugs Act of June 30, 1906," be abolished.

2. That an office be established in the Bureau of Chemistry, U. S. Department of Agriculture, as a sort of clearing house for putting into effect the policies of coöperation adopted by the Association.

3. That the Secretary of Agriculture invite and encourage state officials to ask for information and advice which they need in the enforcement of their laws.

4. That a permanent standing Committee on Coöperation be appointed by the President of this Association, such committee to consist of five members and its duties to be to endeavor to secure coöperation in the enforcement of the National Food and Drugs Act and the food and drugs acts of the several states, to aid in advancing coöperation between the Federal and state food and drug control officials, and to promote coöperation among the state officials of the several states.

That the Secretary of Agriculture appoint one or more persons connected with the Department of Agriculture to meet and act with the Committee on Coöperation of the Association of American Dairy, Food and Drug Officials.

5. That there be created a joint Committee on Definitions and Standards, consisting of three members of the United States Department of Agriculture, three members of the Association of American Dairy, Food and Drug Officials and three members of the Association of Official Agricultural Chemists, to adopt suitable definitions and standards of foods and drugs.

6. That the Department of Agriculture supply state officials with new methods of analyses which have been approved by the Secretary of Agriculture.

7. That the Department of Agriculture notify state officials of violations of the Federal law originating in their respective states.

8. That United States food and drug inspectors report to the proper state officials the violations of state laws coming under their observation.

9. That the Department of Agriculture and the food and drug officials give to the proper state officials full information concerning perishable food or drug products shipped from their states in interstate commerce with the request that such state officials make appropriate investigations of the source of such products and the sanitary conditions under which they are manufactured or produced.

10. That United States inspectors at the request of state officials be instructed to collect samples of intrastate shipments of food and drug products which appear to be illegal and to send them to the state officials concerned.

11. That state officials give to the Bureau of Chemistry information concerning violations of the Food and Drugs Act.

12. That state officials give the Bureau of Chemistry all new information which they secure pertaining to official work and investigations.

13. That state officials make factory inspections and other necessary investigations in their states for the Bureau of Chemistry when called upon for such service.

14. That state officials place their inspection forces at the service of the Bureau of Chemistry for such assistance as may be desirable.

15. That state officials prepare circulars of confidential information concerning illegal drug preparations and send them to other state officials and to the Federal officials.

The following recommendations of the committee were adopted by the Association in August, 1916:

16. That one day of each annual convention of this Association be set apart for an executive session of the Association for the purpose of discussing purely administrative problems.

17. That a standing committee be appointed to report at each annual convention on the court decisions handed down during the year in a way that will guide the officials in the administration of food and drug laws.

18. That state officials endeavor to establish a plan of coöperation between the state food and drug department and the food and drug bureaus of the cities of their respective states.

19. That a committee of microscopists be appointed to standardize the method of counting bacteria, molds, yeasts and spores in sterilized foods.

20. That both state and Federal food and drug officials of this Association unite in the formation of smaller associations on a basis of common interests to study ways and means of handling local problems, and that these conferences be entirely of an executive nature.

21. That food and drug officials notify the office of State Coöperative Food and Drug Control of every violation of the law reported to them and of the results secured by such information.

22. That state officials notify the branch laboratories of the Bureau of Chemistry with whom they are coöperating of seizures under the Food and Drugs Act instituted by them independently of the U. S. Department of Agriculture and of the termination of such cases.

23. That the constitution of this Assocation be amended by adding to what is defined as the purpose of the Association the following sentence: "And to promote uniformity in the administration of dairy, food and drug laws."

THE FOOD AND DRUG CONTROL OFFICIALS' CLEARING HOUSE.

Most of these recommendations have been complied with or are being complied with regularly and systematically in a manner already known to you. It seems proper to call your attention to those that apparently have not been given careful consideration.

In harmony with recommendation No. 2, the Office of State Coöperative Food and Drug Control has been created in the Bureau of Chemistry, U. S. Department of Agriculture. The clearing house phase of coöperation is taken care of by means of a Clearing House Letter, which was inaugurated in January, 1917. It is circulated among food and drug control officials only. Among other things, this letter should contain specific information on the following subjects:

1. Court cases instituted and terminated, state and Federal. (Only state cases of general interest need be reported for publication.)

2. Court decisions, state and Federal.
3. Opinions of the solicitor of the U. S. Department of Agriculture.
4. Opinions of the attorneys general of the states.
5. Opinions of the Bureau of Chemistry.
6. Opinions of the state officials.
7. *Comprehensive plans of work, state and Federal.*
8. Investigational data of value to officials, but for some reason not to be printed, state and Federal.
9. New problems concerning which opinions are desired before action is taken by any organization.
10. New legislation.
11. Joint inspection and investigational work by state and Federal officials.
12. Seizures instituted by state officials independently of the U. S. Department of Agriculture in cases of violations of the Federal Food and Drugs Act.
13. Conferences of state and Federal officials.
14. Definitions and standards.

Recommendation No. 4.—So far as my information goes, there have never been five members of the Committee on Coöperation. This matter was brought to your attention last year and the year before, but no action was taken upon it.

Upon careful consideration of this recommendation, it looks as if the United States Department of Agriculture were a thing apart from this Association, for the secretary of the Department is invited to name one or more representatives of the Department to act with the committee. Why should you ask the secretary of the Department to do this when you have authority to do it?

In this connection your committee has looked over the programs of this Association for the years 1908 to 1917, inclusive, which show that during this period the U. S. Department of Agriculture never has had a representative on your Executive Committee. This is your program committee and the most important committee of your Association. It controls the destiny of your Association for better or for worse. This looks as if either the Department were not doing its bit in the Association or your Association was run as an association of state officials only.

Your committee recommends that recommendation No. 4 be amended by striking out the second paragraph, viz., "That the Secretary of Agriculture appoint one or more persons connected with the Department of Agriculture to meet and act wtih the Committee on Coöperation of the Association of American Dairy, Food and Drug Officials."

Recommendation No. 12.—The Office of State Coöperative Food and Drug Control would be glad to incorporate in its clearing house letter such information as that referred to in this recommendation.

Recommendation No. 16.—This recommendation is brought to your attention with an earnest recommendation that you *adopt it or reject it* and thereby go on record flat footed as to whether you want to discuss all of your administrative problems, policies and plans of work publicly or privately so that your Program Committee may act accordingly.

Recommendation No. 17.—We commend this recommendation again to your careful consideration as offering a good opportunity for the outlining of safe and sane policies for food and drug officials to adopt. If you adopt it, let us live up to it.

Recommendations Nos. 18 and 20.—A beginning in the directions indicated in these recommendations has been made. Two local associations have been formed during the past year as follows:

The Central Atlantic States, Dairy, Food and Drug Officials' Association, made up of the city, State and Federal officials of New York, New Jersey, Delaware, Virginia, Pennsylvania, Maryland, District of Columbia and West Virginia.

The Food, Feed and Drug Officials' Association, South Central States, made up of the city, State and Federal officials of Kentucky, Tennessee, Mississippi, Alabama, Louisiana, Texas, Oklahoma and Arkansas.

Michigan, New Jersey and Indiana have been considering ways and means of establishing coöperative arrangements between their respective State and city food and drug departments. Some other States have for several years had similar connections. But your committee is of the opinion that the practice is not nearly so common as it should be.

The whole formula of your Committee on Coöperation has been one of trying to promote common counsel, a spirit of "get together" often. We commend this formula to the serious consideration of every earnest food and drug official throughout the country. There are many officials, especially inspectors and chemists, who never have a chance to get the benefit of the other fellow's successes and failures, his joys and sorrows.

The President has said, "Life is bitter only when it is lonesome; life is bitter when you feel that the only force working for a good cause is the little force within yourself." Life must be bitter then to many of our earnest and efficient co-workers who seldom, if ever, have a chance to enjoy the sensation that comes of taking a manly part in *planning* things.

THE USE OF THE FOOD AND DRUGS ACT.

Your committee also recommends to your serious attention the provisions of Section 5 of the Food and Drugs Act, as follows:

> "That it shall be the duty of each district attorney to whom the Secretary of Agriculture shall report any violation of this Act, or to whom any health or food or drug officer or agent of any State, Territory or the District of Columbia shall present satisfactory evidence of any such violation, to cause appropriate proceedings to be commenced and prosecuted in the proper courts of the United States, without delay, for the enforcement of the penalties as in such case herein provided."

This means to us that Congress intended for United States attorneys to start proceedings for violations of the Act upon the evidence secured and submitted by State officials. This means that State officials are authorized to enforce the Act. It means the State police power is not adequate for the protection of its citizenship in matters of interstate commerce. The Food and Drugs Act is a supplement to similar State laws, and your committee recommends that State officials use it, both independently and in coöperation with the United States Department of Agriculture, whenever they can do so to better advantage than they can in the enforcement of the State and city laws, that is, when punishment can be visited through the Act upon the individual really culpable, and not upon some local dealer who has no means of knowing anything about the goods which he is handling. During the fiscal year ending June 30, 1916, there were instituted by state officials, under the act, 35 cases. During the fiscal year ending June 30, 1917, there were instituted 124 cases.

Your committee begs to call your attention to the fact that city food and drug officials are not eligible under your constitution to membership in the association. There are many cities that have large and efficient organizations for the enforcement of food and drug ordinances similar in purpose and scope to State and Federal laws. We recommend that the constitution of your Association be amended making any and all food and drug control officials of America eligible to membership in the Association. The word America is used in its broad sense.

President Farrell: Gentlemen, what do you wish to do with the recommendations of Mr. Abbott's report? Is there anyone who wishes to make a statement as to what you wish to do with Mr. Abbott's report? Inasmuch as I am instructed to appoint a committee to do a little constructive work during the ensuing year, I will say that I will name that committee now, so at least portions of Mr. Abbott's report can be referred to them, and that committee will be Mr. Flanders of New York, Dr. Alsberg of Washington and Mr. Barney of Iowa, Mr. Jackson of Rhode Island and Dr. Ladd of North Dakota.

Mr. Harry L. Eskew: Relative to a part of Dr. Ladd's paper as to forming a local association, I wish to say that through the efforts of Dr. Alsberg, Mr. Tolman and Mr. Abbott, we formed an association composed of the officials or the Southeast, and both the South and Central, not only of the State, but of the city and county, and at that meeting we had all of the eleven States represented, and there were two or more of every city offical there. We accomplished in twenty-four hours what had been impossible to do in ten years, in one day's meeting. We made friends with the city officials and got their coöperation. Up to that time there seemed to exist nothing in common between the city officials and the State officials. We invited them to come in, and the result was that the meeting was beneficial to all, for up to that time—and now I am only speaking for the State of Tennessee—it was almost impossible to get coöperation out of the county official, or the city official, and it was almost impossible to get a convention in the State of Tennessee. In the last six months since that meeting, our conventions will run 90 per cent. In other words, we are getting now what is coming to us, and I want to say to you as President of that Association, that it has been rumored that the Association was formed for special interests—I am going to be very plain, gentlemen—it was rumored that it was formed for the special interests of a cottonseed industry. I want to assure you that the rumors are absolutely groundless, and the Association was not formed for any special interest, and we are going to keep that Association as free from that as possible. When the day comes when oleomargarine and dairy products supersede one another, the Association will go on the rocks, and we will try mighty hard to put it there.

To show you how sincere we were in that, when the Association was formed and it became known that we were to meet in Memphis, we got invitations from the dairy interests and from the cottonseed interests, extending us invitations, but we refused every one of them, and if the Association is going to succeed we realize that it will be necessary to keep all external influence outside the Association. The dairy products and every other product should be protected, and just as long as we keep those things out of our Association, we will get along all right.

Mr. George L. Flanders: In conformity with the rule, I suppose the person who is first named, or the person who is first mentioned usually is the Chairman of a committee. The Chair mentioned my name first and I suppore ordinarily I would be Chairman of that committee, but I desire that, inasmuch as Dr. Alsberg brought forward the idea, that he be made Chairman of the committee.

President Farrell: I wish to state that I had Dr. Alsberg's name first, but owing to the fact that you made the motion, I thought it was proper to recognize the gentleman first that made the motion, but as far as I am concerned, we will gladly shift the names.

Mr. R. E. Rose: I believe that the motion is pertinent at this time, and I would suggest that the report on Coöperation read by Mr. Abbott be referred to this newly appointed Constitutional Committee, with special reference to consider enlargement of the membership to include other officials, besides State and National ones engaged in food control, and also to consider the advisability of changing the title or name of the Association to the American Drug and Dairy Food Control Association, in order to enlarge the scope of this National Association, and for them to invite the representatives of the different city or municipal or State organizations to meet with us. I think it ought to embrace the delegates of our local organizations, of cities and districts, and that groups of State officials and everybody else should all be represented in this Congress of American Dairy, Food and Drug Officials. I make that as a motion, and move that the matter be referred to this newly appointed Committee on Constitutional Amendments.

The motion was seconded by Mr. John B. Newman.

President Farrell: Gentlemen, you have heard the motion of Mr. Rose. Are you ready for the question? Is there any discussion? If not, all those in favor of the motion will signify by saying "Aye." Contrary "No." The motion prevails. Mr. W. M. Allen was to have a word to say on Mr. Abbott's report. Is Mr. Allen present? After Mr. Allen says a word, then we will have the report on Definitions and Standards, by Dr. Ladd. Is Mr. Allen present? (*No response.*) As Mr. Allen is not here, we will hear from Dr. E. F. Ladd of North Dakota.

REPORT OF THE JOINT COMMITTEE ON DEFINITIONS AND STANDARDS.

Dr. E. F. Ladd: Mr. President and members of the Association, in November, 1913, the Secretary of Agriculture invited all State food and drug control officials to meet with the food and drug control officials of the Department of Agriculture in Washington, D. C. The chief purpose of that conference was to discuss coöperation in the enforcement of all food and drug laws. They recommended that a joint Committee on Definitions and Standards be appointed to recommend definitions and standards for foods and drugs. Three members of the committee were to be chosen from the membership of the Association of American Dairy, Food and Drug Officials; three from the Association of Official Agricultural Chemists; and three from the United States Department of Agriculture. At the present time the membership of the committee is as follows:

Representing the Association of American Dairy, Food and Drug Officials:

Dr. E. F. Ladd, North Dakota.
Dr. W. F. Hand, Mississippi.
Dr. H. E. Barnard, Indiana.

Representing the Association of Official Agricultural Chemists:

Dr. Wm. Frear, Pennsylvania.
Mr. Julius Hortvet, Minnesota.
Mr. J. P. Street, Connecticut.

Representing the United States Department of Agriculture:

Dr. C. L. Alsberg, Washington, D. C.
Dr. I. K. Phelps, Washington, D. C.
Mr. J. S. Abbott, Washington, D. C.

This committee meets about four times a year and considers the data which it has collected relating to the various foodstuffs and drugs which it has under consideration. It then holds public hearings which the trade, food and drug control officials and others interested in the subject of the hearing are invitied to attend.

The definition and standard finally agreed upon by the committee is recommended first to the Association of American Dairy, Food and Drug Officials or to the Association of Official Agricultural Chemists, depending upon which one meets first, and next to the other one of these Associations. When it has been adopted by each one of these Associations it is then submitted to the Secretary of Agriculture for his approval.

DEFINITIONS AND STANDARDS ADOPTED BY EACH ORGANIZATION.

The following definitions and standards have been adopted by the two Associations and by the Department of Agriculture and issued by the Department in the form of Food Inspection Decisions Nos. 158, 160, 161, 162, 165, 169 and 170, which may be had upon request:

Milk products:
  Condensed milk.
  Evaporated milk.
  Concentrated milk.
  Sweetened condensed milk.
  Condensed skimmed milk.
  Sweetened condensed skimmed milk.
  Dried milk.
  Dried skimmed milk.
  Malted milk.
Gluten products:
  Ground gluten.
  Gluten flour.
  Gluten flour, self-raising.
  "Diabetic" food.

- Maple products:
  - Maple sugar.
  - Maple concrete.
  - Maple sirup.
- Noodles:
  - Noodles.
  - Egg noodles.
  - Plain noodles.
  - Water noodles.
- Cacao products:
  - Cacao beans, cocoa beans.
  - Cacao nibs, cocoa nibs, cracked cocoa.
  - Chocolate, plain chocolate, bitter chocolate, chocolate liquor, chocolate paste, bitter chocolate coatings.
  - Sweet chocolate, sweet chocolate coatings.
  - Cocoa, powdered cocoa.
  - Sweet cocoa, sweetened cocoa.
  - Milk chocolate, milk cocoa, sweet milk chocolate or sweet milk cocoa.
- Edible vegetable fats and oils:
  - Edible fats and edible oils.
  - Cacao butter, cocoa butter.
  - Coconut oil, copra oil.
  - Cochin oil.
  - Ceylon oil.
  - Corn oil, maize oil.
  - Cottonseed oil.
  - Olive oil, sweet oil.
  - Palm kernel oil.
  - Peanut oil, arachis oil, earthnut oil.
  - Poppy seed oil.
  - Rape seed oil, rape oil, colza oil.
  - Soy bean oil, soy oil, soja oil.
  - Sesame oil, gingili oil, teel oil, benne oil.
  - Sunflower oil.
- Grades for commercial corn.

Definitions and Standards Recommended by the Committee and Adopted by the Associations as Indicated.

The following definitions and standards have not yet been presented to the United States Department of Agriculture:

BAKING POWDER.

(Adopted by the A. O. A. C. and the Association of American Dairy, Food and Drug Officials.)

Definitions and standards adopted by the Joint Committee on Definitions and Standards, November 18, 1916.

DEFINITION AND STANDARD FOR EVAPORATED APPLES.

(Adopted by the A. O. A. C. and the Association of American Dairy, Food and Drug Officials.)

MACARONI, SPAGHETTI, VERMICELLI, FLOUR MACARONI, FLOUR SPAGHETTI, FLOUR VERMICELLI.

(Adopted by the A. O. A. C.)

The above schedule has not yet been presented to the American Association of Dairy, Food and Drug Officials, but will come up at the present meeting.

SODA WATER FLAVORS.

(Adopted by the American Association of Dairy, Food and Drug Officials.)

But not yet by A. O. A. C.

Definitions and Standards Adopted by the Joint Committee on Definitions and Standards, August 5, 1916.

This schedule has not yet been presented to the Association of Official Agricultural Chemists for their approval, after which it will go to the Secretary of Agriculture.

The several schedules of definitions and standards now ready for your consideration are presented herewith and when approved by this Association will be ready to be presented to the Association of Official Agricultural Chemists, after which they will through the chief of the Bureau of Chemistry as chairman of the Federal Committee be transmitted to the Secretary of Agriculture for his consideration and approval or further recommendations to the Standards Committee.

I herewith present the following:

MACARONI, SPAGHETTI, VERMICELLI, FLOUR MACARONI, FLOUR SPAGHETTI, FLOUR VERMICELLI.

Definitions and standards adopted by the Joint Committee on Definitions and Standards, November 18, 1916.

Macaroni, spaghetti, vermicelli are dried pastes made of the semolina of hard wheat. They contain not more than thirteen and one-half per cent (13.5%) of moisture.

Flour macaroni, flour spaghetti, flour vermicelli are dried pastes made of flour or of a mixture of flour and semolina. They contain not more than thirteen and one-half per cent (13.5%) of moisture.

CANNED VEGETABLES, CANNED PEAS AND CANNED PEA GRADES.

Definitions and standards adopted by the Joint Committee on Definitions and Standards, April 25, 1917:

1. *Canned vegetables* are properly matured and prepared fresh vegetables, with or without the addition of potable water, salt and sugar, as specified in the separate definitions for the several kinds of canned vegetables, sterilized by heat, with or without previous cooking in vessels from which they take up no injurious substance, and kept in suitable, clean, hermetically sealed containers.

2. *Canned peas* are the canned vegetables prepared from the well-developed but still tender seeds of the common or garden pea (*Pisum sativum*) by shelling, winnowing and thorough washing, with or without grading and with or without precooking (blanching), and by the addition, before sterilization, of the necessary mount of potable water, with or without sugar and salt.

CANNED PEA VARIETIES.

3. *Early peas* are peas of early maturing sorts having a smooth skin.

4. *Sugar peas, sweet peas* are peas of later maturing varieties having a wrinkled skin and sweet flavor.

CANNED PEA GRADES.

5. *Fancy peas* are young, succulent peas of fairly uniform size and color, unless declared to be ungraded for size, with reasonably clear liquor, and free from flavor defects due to imperfect processing.

6. *Standard peas* are less succulent peas than the "fancy" grade, but green and of mellow consistency, of uniform size and color, unless declared to be ungraded for size, with reasonably clear liquor, though not necessarily free from sediment, and reasonably free from flavor defects due to imperfect processing.

7. *Sub-standard* peas are peas that are over-mature, though not fully ripened, or that lack in other respects the qualifications for the standard grade.

CANNED PEA SIZES.

No. 1 peas are peas which were, before precooking (blanching), small enough to pass through a screen of 9/32 inch (7 mm.) mesh.

No. 2 peas are peas which were, before precooking (blanching), small enough to pass through a screen of 10/32 inch (8 mm.) mesh.

No. 3 peas are peas which were, before precooking (blanching), small enough to pass through a screen of 11/32 inch (8.7 mm.) mesh.

No. 4 peas are peas which were, before precooking (blanching), small enough to pass through a screen of 12/32 inch (9.5 mm.) mesh.

No. 5 peas are peas which were, before precooking (blanching), small enough to pass through a screen of 13/32 inch (10.3 mm.) mesh.

No. 6 peas are peas not all of which were, before precooking (blanching), small enough to pass through a screen of 13/32 inch (10.3 mm.) mesh.

DEFINITIONS AND STANDARDS FOR CONDIMENTS OTHER THAN VINEGARS AND SALT.

Adopted by the Joint Committee on Definitions and Standards, July 29, 1917.

The term "dried" as used in this schedule refers to the air-dried product. The term "starch" as used in this schedule refers to starch as determined by the official diastase method.

In the examination of the products listed in this schedule the methods of analysis of the Associaiton of Official Agricultural Chemists should be followed, except where otherwise specified.

1. *Spices* are aromatic vegetable substances used for the seasoning of food. They are clean, sound and true to name, and from them no portion of any volatile oil or other flavoring principle has been removed.

2. *Allspice, pimento,* is the dried, nearly ripe fruit of *pimenta officinalis* (L.) Karst. It contains not less than eight per cent (8%) of quercitannic acid (calculated from the total oxygen absorbed by the aqueous extract), not more than twenty-five per cent (25%) of crude fiber, not more than six per cent (6%) of total ash, nor more than four-tenths per cent (0.4%) of ash insoluble in hydrochloric acid.

3. *Anise, aniseed,* is the dried fruit of *Pimpinella anisum* L. It contains not more than nine per cent (9%) of total ash, nor more than one and five-tenths per cent (1.5%) of ash insoluble in hydrochloric acid.

4. *Bay leaves* are the dried leavs of *Laurus nobilis* L.

5. *Capers* are the flower buds of *Capparis spinosa* L.

6. *Caraway, caraway seed,* is the dried fruit of *Carum carvi* L. It contains not more than eight per cent (8%) of total ash, nor more than one and five-tenths per cent (1.5%) of ash insoluble in hydrochloric acid.

7. *Cardamom* is the dried, nearly ripe fruit of *Elettaria cardamomum,* White & Eaton.

8. *Cardamom seed* is the dried seed of cardamom. It contains not more than eight per cent (8%) of total ash, nor more than three per cent (3%) of ash insoluble in hydrochloric acid.

9. *Red pepper* is the red, dried, ripe fruit of any species of *Capsicum.* It contains not more than eight per cent (8%) of total ash, nor more than one per cent (1%) of ash insoluble in hydrochloric acid.

10. *Cayenne pepper, cayenne,* is the dried, ripe fruit of *Capsicum frutescens* L., *Capsicum baccatum* L., or some other small-fruited species of Capsicum. It contains not less than fifteen per cent (15%) of non-volatile ether extract, not more than one and five-tenths per cent (1.5%) of starch, not more than twenty-eight per cent (28%) of crude fiber, not more than seven per cent (7%) of total ash, nor more than one per cent (1%) of ash insoluble in hydrochloric acid.

11. *Paprika* is the dried, ripe fruit of *Capsicum annuum* L. It contains not more than eight and five-tenths per cent (8.5%) of total ash, nor more than one per cent (1%) of ash insoluble in hydrochloric acid. The iodin number of its extracted oil is not less than 125 nor more than 136.

12. *Hungarian paprika* is paprika having the pungency and flavor characteristic of that grown in Hungary.

(a) *Rosenpaprika, rozsapaprika, rose paprika* is Hungarian paprika prepared by grinding specially selected pods of paprika, from which the placentac, stalks, and stems have been removed. It contains no more seeds than the normal pods, not more than eighteen per cent (18%) of non-volatile ether extract, not more than twenty-three per cent (23%) of crude fiber, not more than six per cent (6%) of total ash, nor more than four-tenths per cent (0.4%) of ash insoluble in hydrochloric acid.

(b) *Koenigspaprika, king's paprika,* is Hungarian paprika prepared by grinding whole pods of paprika without selection and includes the seeds and stems naturally occurring with the pods. It contains not more than eighteen per cent (18%) of non-volatile ether extract, not more than twenty-three per cent (23%) of crude fiber, not more than six and five-tenths per cent (6.5%) of total ash, nor more than five-tenths per cent (0.5%) of ash insoluble in hydrochloric acid.

13. *Pimenton, pimiento, Spanish paprika,* is paprika having the characteristics of that grown in Spain. It contains not more than eighteen per cent (18%) of non-volatile ether extract, not more than twenty-one per cent (21%) of crude fiber, not more than eight and five-tenths per cent (8.5%) of total ash, nor more than one per cent (1%) of ash insoluble in hydrochloric acid.

14. *Celery seed* is the dried fruit of *Apium graveolens* L. It contains not more than ten per cent (10%) of total ash, nor more than two per cent (2%) of ash insoluble in hydrochloric acid.

15. *Cinnamon* is the dried bark of cultivated varieties of *Cinnamomum zeylanicum* Breyne or of *Cinnamomum cassia* (Nees) Blume, from which the outer layers may or may not have been removed.

16. *Ceylon cinnamon* is the dried inner bark of cultivated varieties of *Cinnamomum zeylanicum* Breyne.

17. *Saigon cinnamon, cassia,* is the dried bark of cultivated varieties of *Cinnamomum cassia* (Nees) Blume.

18. *Ground cinnamon,* ground cassia,* is the powder made from cinnamon. It contains not more than five per cent (5%) of total ash, nor more than two per cent (2%) of ash insoluble in hydrochloric acid.

19. *Cloves* are the dried flower buds of *Caryophyllus aromaticus* L. They contain not more than five per cent (5%) of clove stem, not less than fifteen per cent (15%) of volatile ether extract, not less than twelve per cent (12%) of quercitannic acid (calculated from the total oxygen absorbed by the aqueous extract), not more than ten per cent (10%) of crude fiber, not more than seven per cent (7%) of total ash, nor more than five-tenths per cent (0.5%) of ash insoluble in hydrochloric acid.

20. *Coriander seed* is the dried fruit of *Coriandrum sativum* L. It contains not more than seven per cent (7%) of total ash, nor more than one and five-tenths per cent (1.5%) of ash insoluble in hydrochloric acid.

21. *Cumin seed* is the dried fruit of *Cuminum cyminum* L. It contains not more than eight and five-tenths per cent (8.5%) of total ash, nor more than one and five-tenths per cent (1.5%) of ash insoluble in hydrochloric acid.

22. *Curcuma, turmeric,* is the dried rhizome or bulbous roots of *Curcuma longa* L.

23. *Dill seed* is the dried fruit of *Anethum graveolens* L. It contains not more than ten per cent (10%) of total ash, nor more than three per cent (3%) of ash insoluble in hydrochloric acid.

24. *Fennel seed* is the dried fruit of cultivated varieties of *Foeniculum vulgare* Hill. It contains not more than nine per cent (9%) of total ash, nor more than two per cent (2%) of ash insoluble in hydrochloric acid.

25. *Ginger* is the washed and dried, or decorticated and dried, rhizome of *Zinziber officinale* Roscoe. It contains not less than forty-two per cent (42%) of starch, not more than eight per cent (8%) of crude fiber, not more than one per cent (1%) of lime (CaO), not less than twelve per cent (12%) of cold water extract, not more than seven per cent (7%) of total ash, not more than two per cent (2%) of ash insoluble in hydrochloric acid, nor less than two per cent (2%) of ash soluble in cold water.

26. *Jamaica ginger* is ginger grown in Jamaica. It contains not less than fifteen per cent (15%) of cold water extract, and conforms in other respects to the standards for ginger.

27. *Limed ginger, bleached ginger,* is whole ginger coated with carbonate of calcium. It contains not more than four per cent (4%) of carbonate of calcium, nor more than ten per cent (10%) of total ash, and conforms in other respects to the standards for ginger.

28. *Horseradish* is the root of *Radicula armoracia* (L.) Robinson.

29. *Prepared horseradish* is comminuted horseradish, with or without a vinegar.

30. *Mace* is the dried arillus of *Myristica fragrans* Houtt. It contains not less than twenty per cent (20%) nor more than thirty per cent (30%) of non-volatile ether extract, not more than ten per cent (10%) of crude fiber, not more than three per cent (3%) of total ash, nor more than five-tenths per cent (0.5%) of ash insoluble in hydrochloric acid.

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*The question of the value of cassia buds in ground cinnamon is under consideration.

31. *Macassar mace, papua mace,* is the dried arillus of *Myristica argentea* Warb.

32. *Marjoram* is the dried leaves, with or without a small proportion of the flowering tops, of *Majorana hortensis* Moench.

33. *Mustard seed* is the seed of *Sinapis alba* L. (white mustard), *Brassica nigra* (L.) Koch (black mustard), *Brassica juncea* Hook f. et Th., or varieties or closely related species of the types of *Brassica nigra* and *Brassica juncea.*

Sinapis alba (white mustard) contains no appreciable amount of volatile oil. It contains not more than five per cent (5%) of total ash, nor more than one and five-tenths per cent (1.5%) of ash insoluble in hydrochloric acid.

Brassica nigra (black mustard) and *Brassica juncea* yield six-tenths per cent (0.6%) of volatile mustard oil (calculated as allylisothiocyanate and determined by the method given in Service and Regulatory Announcements, Chemistry 20). The varieties and species closely related to the types of *Brassica nigra* and *Brassica juncea* yield not less than six-tenths per cent (0.6%) of volatile mustard oil, similar in character and composition to the volatile oils yielded by *Brassica nigra* and *Brassica juncea.* These mustard seeds contain not more than five per cent (5%) of total ash, nor more than one and five-tenths per cent (1.5%) of ash insoluble in hydrochloric acid.

34. *Ground mustard* is the powder made from mustard seed, and conforms to the standards for mustard seed.

35. *Mustard flour* is the powder made from mustard seed with the hulls largely removed and with or without the removal of a portion of the fixed oil. It contains not more than one and five-tenths per cent (1.5%) of starch, nor more than six per cent (6%) of total ash.

36. *Prepared mustard, German mustard, French mustard, mustard paste,* is a paste composed of a mixture of ground mustard or mustard flour, with salt, a vinegar and with or without spices or other condiments which do not simulate the color of yellow ground mustard. Calculated free from water, fat and salt it contains not more than twenty-four per cent (24%) of carbohydrates (calculated as starch), not more than twelve per cent (12%) of crude fiber, nor less than five and six-tenths per cent (5.6%) of nitrogen derived solely from the materials herein named.

37. *Nutmeg* is the dried seed of *Myristica fragrans* Houtt. deprived of its testa, with or without a thin coating of lime (CaO). It contains not less than twenty-five per cent (25%) of non-volatile ether extract, not more than ten per cent (10%) of crude fiber, not more than five per cent (5%) of total ash, nor more than five-tenths per cent (0.5%) of ash insoluble in hydrochloric acid.

38. *Macassar nutmeg, Papua nutmeg, Male nutmeg, long nutmeg,* is the dried seed of *Myristica argentea* Warb., deprived of its testa.

39. *Paradise seed, grains of paradise, Guinea grains, Melegueta pepper,* is the seed of *Amomum melegueta* Roscoe.

40. *Parsley leaves* are the leaves of *Petroselinum sativum* Hoffm.

41. *Black pepper* is the dried immature berry of *Piper nigrum* L. It contains not less than six and seventy-five hundredths per cent (6.75%) of non-volatile ether extract, not less than thirty per cent (30%) of starch, not more than seven per cent (7%) of total ash, nor more than one and five-tenths per cent (1.5%) of ash insoluble in hydrochloric acid.

42. *Ground black pepper* is the product made by grinding the entire berry of *Piper nigrum* L. It contains the several parts of the berry in their normal proportions.

43. *Long pepper* is the dried fruit of *Piper longum* L.

44. *White pepper* is the dried mature berry of *Piper nigrum* L., from which the outer coating, or the outer and inner coatings have been removed. It contains not less than seven per cent (7%) of non-volatile ether extract, not less than fifty-two per cent (52%) of starch, not more than five per cent (5%) of crude fiber, not more than three and five-tenths per cent (3.5%) of total ash, nor more than three-tenths per cent (0.3%) of ash insoluble in hydrochloric acid.

45. *Saffron* is the dried stigma of *Crocus sativus* L. It contains not more than ten per cent (10%) of yellow styles and other foreign matter, not more than fourteen per cent (14%) of volatile matter when dried at 100° C., not more than six per cent (6%)of total ash, nor more than one per cent (1%) of ash insoluble in hydrochloric acid.

46. *Sage* is the dried leaf of *Salvia officinalis* L. It contains not less than one per cent (1%) of volatile ether extract, not more than twenty-five per cent (25%) of crude fiber, not more than ten per cent (10%) of total ash, nor more than one per cent (1%) of ash insoluble in hydrochloric acid.

47. *Savory, summer savory,* is the dried leaf and flowering tops of *Satureja hortensis* L.

48. *Star aniseed* is the dried fruit of *Illicium verum* Hook. It contains not more than five per cent (5%) of total ash.

49. *Tarragon* is the dried leaves and flowering tops of *Artemisia dracunculus* L.

50. *Thyme* is the dried leaves and flowering tops of *Thymus vulgaris* L. It contains not more than fourteen per cent (14%) of total ash, nor more than four per cent (4%) of ash insoluble in hydrochloric acid.

STANDARDS FOR MILK AND CREAM.

1. *Milk* is the whole, fresh, clean, lacteal secretion obtained by the complete milking of one or more healthy cows, properly fed and kept, excluding that obtained within fifteen days before and five days after calving, or such longer period as may be necessary to render the milk practically colostrum free.

The composition of milk varies so greatly that it is not practicable to fix limits which are applicable in all localities. It is, therefore, left to the state and municipal authorities to adopt as high standards as their local production conditions may warrant.

2. *Standardized Milk, Adjusted Milk,* is milk of which the original fat content has been changed by partial skimming, or by the addition of skimmed milk, cream, or milk rich in fat to maintain a declared percentage of milk fat. It contains not less than three and seventy-five hundredths per cent (3.75%) of milk fat.

3. *Skimmed milk* is milk from which substantially all of the milk fat has been removed.

4. *Cream, sweet cream,* is that portion of milk, rich in milk fat, which rises to the surface of milk on standing, or is separated from it by centrifugal force. It is fresh and clean. It contains not less than eighteen per cent (18%) of milk fat and not more than two-tenths per cent (0.2%) of lactic acid.

5. *Heavy cream* is cream that contains not less than forty per cent (40%) of milk fat.

6. *Whipping cream* is unpasteurized cream that contains not less than thirty per cent (30%) of milk fat.

7. *Pasteurized milk, Pasteurized cream, Pasteurized skimmed milk,* are milk, cream and skimmed milk, respectively, that have been subjected to a temperature not lower than 145 degrees Fahrenheit for not less than thirty minutes. Unless they are bottled hot, they are promptly cooled to 50 degrees Fahrenheit, or lower.

8. *Buttermilk* is the product that remains when fat is removed from milk or cream, sweet or sour, in the process of churning. It contains not less than eight and five-tenths per cent (8.5%) of milk solids not fat.

9. *Homogenized milk* or *Homogenized cream* is milk or cream that has been mechanically treated in such a manner as to alter its physical properties with particular reference to the condition and appearance of the fat globules.

Approved.

STANDARD FOR CHEESE.

1. *Cheese** is the sound product made from curd obtained from whole milk, part skimmed or skimmed milk, goat's milk, or the milk of other animals, with or without

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*The name "cheese" as used without qualification in America refers to American cheese, American Cheddar cheese.

added cream, by coagulating the casein with rennet, lactic acid, or other suitable enzyme or acid, and with or without the further treatment of the separated curd by heat or pressure or by means of ripening ferments, special moulds or seasoning.

A cheese bearing a varietal name indicating a special process and foreign origin, when made in America by the same process, is designated as American Camembert, American Emmenthaler, American Swiss, American Edam, or American Roquefort cheese, as the case may be, and, except for the place of manufacture, conforms to the definition and standard of the foreign cheese.

American cheeses made from cow's milk to resemble foreign varieties made from the milk of other animals are designated in such a manner as to indicate that they are made of cow's milk.

2. *Whole milk cheese* is cheese made from whole milk.

3. *Skimmed milk cheese* is cheese made from skimmed milk.

In the case of cheese normally made from whole milk, when milk is used from which any of the fat has been removed, the approximate amount of this fat removal is stated in connection with the varietal name of the cheese, e. g., "Edam one-quarter skimmed milk," "one-half skimmed milk Edam," "three-quarter skimmed milk Edam," etc., as the case may be.

CHEESE MADE FROM WHOLE MILK.

4. *American cheese, American cheddar cheese,* is the cheese made in America by the cheddar process, from pressed curd obtained by the action of rennet on whole milk. It contains not more than thirty-nine per cent (39%) of water, and, in the water-free substance, not less than fifty per cent (50%) of milk fat.

5. *Stirred curd cheese, sweet curd cheese,* is the cheese made in America by a modified cheddar process, from curd obtained by the action of rennett on whole milk, in which treatment of the curd after removal of whey yields a product of more open granular texture than American cheddar cheese. It conforms in respect to moisture and fat content to the standard for American cheddar cheese.

6. *American limburger cheese* is the cheese made in America by the limburger process, from unpressed curd obtained by the action of rennet on whole milk. The curd is ripened in damp atmosphere by special forced fermentation. It contains, in the water-free substance, not less than fifty per cent (50%) of milk fat.

7. *Brick cheese* is the quick-ripened cheese made in America by the brick cheese process, from pressed curd obtained by the action of rennet on whole milk. It contains, in the water-free substance, not less than fifty per cent (50%) of milk fat.

8. *Stilton cheese* is the cheese made in England by the Stilton process, from unpressed curd obtained by the action of rennet on whole milk, with or without added cream. The curd is ripened by special moulds which give it a peculiar blue or green color.

9. *Edam cheese* is the cheese made in Holland by the Edam process, from pressed curd obtained by the action of rennet on whole milk, or partly skimmed milk, and ripened by special gas producing bacteria, causing characteristic "eyes" or holes. It contains, in the water-free substance, not less than forty-five per cent (45%) of milk fat.

Note.—Definitions and standards for other cheeses are under consideration by the Standards Committee.

A large number of other schedules for food products have been carefully studied by the several sub-committees and in some cases hearings have been held, but the work is as yet incomplete and definitions and standards have not been fully formulated for final consideration by the full committee, and must be considered at a later meeting.

Few persons not thoroughly familiar with the complexities of such work can realize how large is the task of formulating definitions and preparing of standards. The large amount of data that must be examined and compiled, the many analyses necessary to make in order to secure essential and trustworthy data where analytical data is wanting, and almost always this is the case, and the holding of public hearings before trustworthy standards to accompany definitions can be established makes the work a difficult one.

I call attention to this as some have wondered as to the reason for slow progress by the committee and probably without realizng the magnitude of the undertaking or the necessity for great care in the preparation of such definitions and standards.

A little consideration will show how important it is that there be few changes in the personnel of the committee in order that good progress may be made, for when a member of the committee in charge of some schedule has been one or two years gathering facts and formulating principles it is a serious matter to have the work dropped and then taken up by another wholly unfamiliar with the particular subject matter assigned.

It is therefore with keen regret that we find one of our number, because of other duties, forced to resign as a member of the Standards Committee, and so in accordance with the vote of the Committee I present the following:

Whereas. Dr. Wm. F. Hand has tendered his resignation as a member of the Joint Committee on Definitions and Standards, representing the American Association of Dairy, Food and Drug Officials; therefore, be it

Resolved, That the Joint Committee on Definitions and Standards expresses its deep regret at Dr. Hand's resignation and its appreciation of the highly technical assistance and the faithful, conscientious and effective service which he has rendered the joint committee in its deliberations; and

Whereas, A resolution was passed at a meeting of the American Association of Dairy, Food and Drug Officials, held at Washington, D. C., in November, 1913, to the effect that the members of the Joint Committee on Definitions and Standards, representing the American Association of Dairy, Food and Drug Officials, should be selected from the scientific section of the Association; and

Whereas, It is the judgment of the Joint Committee on Definitions and Standards, based on its past experience, that the best interests of the work of this committee are furthered by including in its membership only technically trained food or drug chemists; therefore, be it

Resolved, by the Joint Committee on Definitions and Standards, That, in harmony with the above expressed resolution of the American Association of Dairy, Food and Drug Officials and in harmony with the experience of the Joint Committee, the Joint Committee on Definitions and Standards recommends to the American Association of Dairy, Food and Drug Officials the appointment of a technically trained food or drug chemist of this Association as a successor to Dr. Hand; and be it further

Resolved, That the secretary of the Joint Committee on Definitions and Standards be instructed to send a copy of these resolutions to Dr. Hand.

Mr. F. H. Stadtmueller: I move the adoption of the Standards report.

The motion was seconded.

President Farrell: It has been moved and seconded that the report of the Committee on Definitions and Standards be adopted. Are you ready for the question? All those in favor of the motion will signifiy by saying "Aye." Contrary "No." The motion is carried. You will note, Mr. Stadtmeuller, that I used slightly different wording from you; I said the report of the Committee on Definitions and Standards. Do you wish to include the resolution of Dr. Ladd's which he has included at the end of his report?

Mr. F. H. Stadtmueller: I simply had reference to the Standards report of the Committee on Definitions and Standards.

President Farrell: Do you wish to take any action upon the resolution at this time?

Mr. R. E. Rose: I think we should take action upon that motion, and also to fill the vacancy as recommended by the Committee on Standards. I move you, sir, that the resolution be adopted, and that the Association fill the vacancy by a committeeman along the lines of qualifications suggested by the Committee on Standards.

The motion was seconded by Mr. Frank A. Jackson of Rhode Island.

PRESIDENT FARRELL: I would like to make an explanation, gentlemen, that inasmuch as this appointment has generally been made by the chair to fill such vacancy, and that appointment or selection will then be presented to the Secretary of Agriculture for acceptance, I wish to call your attention to the fact that we should look over the field before we take action by electing the committee from the floor this morning, and later on after due consideration such committee can be elected and presented to the Secretary of Agriculture for acceptance.

MR. R. E. ROSE: I am under the impression that the Secretary of Agriculture has to accept or drop.

PRESIDENT FARRELL: Yes, he no doubt will.

MR. R. E. ROSE: I move the adoption of the resolution as recommended by the Committee on Standards.

The motion was seconded.

PRESIDENT FARRELL: Gentlemen, you have heard the motion, duly seconded, that the resolution read by Dr. Ladd be adopted. Are you ready for the question? All those in favor of the resolution will signify by saying "Aye." Contrary "No." It is adopted.

Gentlemen, there were one or two places on the report of the Committee on Definitions and Standards and also on the report of Coöperation that the commissioners did not have much time to discuss in either one of the reports. Do you wish any further time to discuss either one of them?

DR. W. W. RANDALL: May I have the floor for a minute? I tried to express an idea a little while ago as to an arrangement which might be made to further this matter on which Dr. Alsberg has spoken, but I do not think I made it at all clear, and with that idea in mind, I have drawn up this resolution, which I wish to read, and I think the object of it will be perfectly plain.

> "Resolved, That Article XV of the Constitution be amended so as to read as follows:
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> "Amendments to this Constitution may be made at regular annual meetings of the Association, provided that such amendment has been duly presented to the Executive Committee, has been approved by that committee and has been referred by the committee to the several food control officials who are members of this Association, all at least two months prior to the annual meeting of the Association, and provided it shall not be adopted except by the vote of at least two-thrds of those present at the annual meeting."

If this amendment is adopted a year hence, it would then be possible to take up the report of the special committee which has been arranged for today, and the matter could be put into operation without waiting another year.

PRESIDENT FARRELL: You have heard the resolution as offered by Dr. Randall of Maryland. Have you anything to say upon that, gentlemen?

MR. BENJAMIN L. PURCELL: I would suggest that the matter be not referred to the Resolutions Committee, but that the rules be suspended and the resolution put upon its passage without reference to the Resolutions Committee, and I make this motion with all due deference to the chairman.

The motion was seconded.

PRESIDENT FARRELL: It has been moved and seconded that the rules be suspended, that we may adopt this resolution from the floor immediately. Are you ready for this motion? Do you wish to discuss it or do you understand it? All those in favor of suspending the rules will signify by saying "Aye." Contrary "No." The motion is carried. We will act upon the resolution and adopt it from the floor. Are you ready to adopt this resolution?

DR. WILLIAM FREAR: May I ask for a re-reading of that part of the resolution which relates to the powers of the Executive Committee?

DR W. W. RANDALL: Since it would be impossible to bring this before any other convention I thought it would serve the purpose to refer to the Executive Committee, and by them be referred to the several state officials.

DR. WILLIAM FREAR: May the Executive Committee under this resolution suppress or submit to the members of the Association any proposed amendment that is offered?

DR. W. W. RANDALL: Under this resolution the approval of the Executive Committee is called for in case such an amendment is proposed between one meeting and the next.

DR. WILLIAM FREAR: Only in such cases?

DR. W. W. RANDALL: Yes, only in such cases. I think that is the only way that it could be taken care of. It does not prevent some one from bringing up an amendment at the annual meeting. It is only a means of taking the matter up more quickly.

The resolution was re-read.

MR. BENJAMIN L. PURCELL: There is a question whether that is not a limitation for the procedure provided in the constitution.

PRESIDENT FARRELL: This will apply to everything of that character; that is the way I see it. We can make it specific to ocver one thing. Gentlemen, did I hear a motion to adopt this resolution?

The adoption of the resolution was moved.

PRESIDENT FARRELL: It has been moved and seconded that we adopt this proposed amendment to the constitution. All those in favor signify by saying "Aye." Contrary "No." You will understand we are only adopting this to consider amendments. It is adopted. Are you ready, Mr. Flanders, with the report of the Resolutions Committee?

MR. GEORGE L. FLANDERS: Yes.

PRESIDENT FARRELL: We will now listen to the report of the Resolutions Committee by its chairman, Mr. George L. Flanders, of New York.

REPORT OF THE RESOLUTIONS COMMITTEE.

MR. GEORGE L. FLANDERS: Mr. President and gentlemen, your Resolutions Committee respectfully submit the following resolutions:

> Resolved, That this Association hereby expresses its appreciation to the President and the other officers of the Association for their untiring efforts in preparing the program and in carrying out its provisions, for their courtesy, accuracy and care in discharging all the functions of their respective positions.

MR. R. E. ROSE: I move the adoption of this resolution.

The motion was seconded by Dr. Randall.

PRESIDENT FARRELL: I did not ask you whether you want to adopt them separately as they were read.

The foregoing resolution was unanimously adopted.

MR. GEORGE L. FLANDERS (*reading*):

> Whereas Almighty God in His infinite wisdom and mercy has called to his final reward our distinguihsed fellow member, Dr. R. E. Stallings, for many years Chief Chemist of the State of Georgia,
>
> Therefore, Be It Resolved, By the Association of American Dairy Food and Drug Officials, in convention assembled, that in the death of Dr. Stallings this Association has sustained the loss of one of its most valuable members; that we recognize and appreciate his brilliant intellect and sterling integrity, and that we shall miss his wise counsel and advice; that we extend to his family and friends our deep sympathy in their bereavement and record our sincere sorrow in the loss of a conscientious, respected and beloved member of this Association.
>
> *Requiscat in pace.*
>
> As a further mark of respect the Secretary of this Association is directed to spread a copy of this resolution on the minutes of the Association and to send a copy of the same to Mrs. Stallings.

DR. WILLIAM FREAR: I move the adoption of the resolution by a rising vote.

The motion was seconded and carried by a rising vote of the convention.

MR. GEORGE L. FLANDERS (*reading*):

> Be It Resolved, By this, the American Dairy, Food and Drug Association at this, its twenty-first annual ses-

session, held at Atlantic City, New Jersey, that it hereby commends the action of the National Government and its purpose to increase and conserve food production, and to exercise the necessary supervision of and control over its distribution, believing, in view of the world-wide crisis, that this move is a world-wide necessity and therefore needs all possible orderly aid; therefore, this Association hereby tenders its help and aid to the duly constituted authorities in charge of the work, in any and every way possible through any and all of the channels of its organization work or knowledge. To that end this Association has appointed a committee as a medium of communication with such duly constituted national authority. The personnel of said committee so appointed is:

John P. Street, New Haven, Conn.
E. F. Ladd, Agricultural College, North Dakota.
H. E. Barnard, Indianapolis, Ind.
Benjamin L. Purcell, Richmond, Va.
George L. Flanders, Albany, N. Y., and the President and the Secretary, *ex-officio.*

Resolved, That a copy of this resolution be sent by the Secretary of this Association to the President of the United States.

(Signed) George L. Flanders, New York.
Benjamin L. Purcell, Virginia.
W. B. Barney, Iowa.
Frank H. Stadmueller, Connecticut.

Mr. R. E. Rose moved the adoption of the foregoing resolution and the motion was carried by a unanimous vote of the convention.

Mr. George L. Flanders: That is all of the resolutions.

President Farrell: Gentlemen, we are getting pretty close to the end of our program, and we will not detain you very much longer, but no doubt there is some unfinished business, and if so, I would like to have any of the members who desire to present anything bring it up now, before we proceed with the election of officers.

Mr. L. M. Tolman: As I understand it, there was a committee appointed by Section A and Section B to consider as to whether these two sections should be continued next year, and it seems to me that that ought to be taken up at this time.

President Farrell: No doubt the two committees met, and we will be pleased to hear from them, if they have a report to make. That is the only way we can bring it up.

Mr. L. M. Tolman: Section B has had a conference and has a report to make. As far as the committee for Section A is concerned, I have consulted with some of the individuals, but not with the whole committee, and I do not know what Section A has done. The committee on Section B after considering the matter, feels that there is no demand in this Association for a sectional meeting of that kind; that the interests of the Association as a whole are the interests of every member of the Association, and that is, as far as we could see, the best interests of the Association would be to have no sections, but meet as a whole on all of the questions that are of interest to this Association. That is the sum and total of our recommendation. The committee that was appointed by Section B is Dr. Ladd, Dr. Randall and myself.

Mr. R. E. Rose: I would ask the committeeman if any provision or suggestion was made as to the executive session of the officers of the Association? I think it is very important that there should be an executive session during the meeting of this Association, for the purpose of considering those things that properly come before the executive members of the Association. We certainly do require an executive session, and that was my idea in voting for that resolution, that the two committees could get together and drop Section B, and that the Association would instruct the Committee on Program to provide for an executive session during the meeting of the Association.

Mr. L. M. Tolman: In this connection I would say that we were all unanimous in the opinion that there should be an executive session some time during the meeting of the Association, where all those things could be taken up.

President Farrell: You will understand that Section 13 provides for the being or life of those two bodies.

Mr. R. E. Rose: I am aware of that. Of course, this is only a preliminary order. I think this matter should be referred to this Constitutional Committee that is to be appointed by the President, and I move that the subject matter be referred to that committee.

The motion was seconded.

President Farrell: It has been moved and seconded that Section A and Section B and their future be referred to the Constitutional Committee. Are you ready for the question? All those in favor of the motion will signify by saying "Aye." Contrary "No." It is so ordered.

Secretary Newman: Is it the understanding that the Executive Committee in arranging the program for next year would simply assign a place for a round-table meeting for those two sections, on the program, pending action on the matter?

Mr. L. M. Tolman: Yes, a joint meeting.

Mr. Benjamin L. Purcell: Under a misapprehension, I raised yesterday the point that there was no quorum present on the motion of Dr. Barnard of Indiana. I desire, if I am within parliamentary limitations, to withdraw my point and have the motion of Dr. Barnard taken up for consideration at this time.

The motion was seconded.

President Farrell: As I remember this motion, Dr. Barnard desires to have this matter referred back to the committee. Gentlemen, are you ready to act upon this motion of Dr. Barnard's on the question of returned canned goods? As I remember Dr. Barnard's motion, it was unfinished, and should be referred back to the committee. All those in favor of having it referred back to the committee will signify by saying "Aye." Contrary "No." The motion is carried, and it is referred back to the committee.

Is there any further unfinished business to come before the convention? If not, we will proceed with the election of officers. The President is the first officer to be chosen, and names will be in order.

Mr. George L. Flanders: From the beginning of this organization one State, a large dairy State, a large food State, a State which has been foremost in pushing its food laws, the State of Pennsylvania has not been represented by a President; I therefore, in the interests of that great dairy State, nominate for President its representative, Mr. James Foust.

The nomination was seconded.

President Farrell: Mr. James Foust has been nominated for President. Are there any further nominations, gentlemen?

Mr. W. B. Barney: I move you, if there are no further nominations, that the rules be suspended and the Secretary be instructed to cast the ballot of the Association for the election of Mr. James Foust of Pennsylvania.

The motion was seconded.

President Farrell: You have heard the motion. There being no further nominations, the rules are suspended and the Secretary is instructed to cast the ballot of this Association for the election of Mr. Foust of Pennsylvania.

The motion was seconded and carried and the Secretary was instructed to cast a ballot for Mr. Foust, which he stated he had done, and the President thereupon declared Mr. James Foust duly elected as President of the Association for the ensuing year.

President Farrell: The officer next to be elected is the First Vice-President.

Mr. Benjamin L. Purcell: I desire to nominate for that position Mr. Soule of Maine. It is hardly necessary for me to say anything about his qualifications or his ability to perform the duties in connection with the office of First Vice-President. We all know very well that he will meet the responsibilities that fall upon him.

The nomination was seconded.

President Farrell: Are there any further nominations? How do you wish to elect Mr. Soule?

Dr. E. L. Barnhouse: I move you that we suspend the rules and that the Secretary be instructed to cast the vote of the Association for Mr. Soule.

The motion was seconded and carried. The Secretary stated that he had cast the ballot of the Association for Mr. A. M. G. Soule of Maine, and the President thereupon declared him duly elected First Vice-President of the Association for the ensuing year.

PRESIDENT FARRELL: The office of Second Vice-President is next.

MR. FRANK A. JACKSON: I would like to present the name of Mr. Moore of Alabama.

The nomination was seconded.

PRESIDENT FARRELL: If there are no further nominations I will declare the nominations closed.

MR. BENJAMIN L. PURCELL: I make a motion that the rules be suspended and that the Secretary be instructed to cast the ballot of the Association for Mr. Moore.

PRESIDENT FARRELL: It has been moved and seconded that the rules be suspended and that the Secretary be instructed to cast the ballot of the Association for Mr. Moore. All those in favor of the motion will signify by saying "Aye." Contrary "No." The motion is carried, and the Secretary is instructed to cast the ballot of the Association for Mr. Moore.

The Secretary stated that he had cast the ballot of the Association for Mr. J. M. Moore of Alabama as Second Vice-President, and he was thereupon declared elected to that office for the ensuing year.

PRESIDENT FARRELL: We will now take up the election of a Third Vice-President.

MR. W. B. BARNEY: I wish to place in nomination for that office a gentleman from a neighboring state of mine, Dr. E. L. Barnhouse of Missouri.

The nomination was seconded.

PRESIDENT FARRELL: You have heard the nomination of Dr. Barnhouse for Third Vice-President, how do you wish to elect this gentleman?

MR. BENJAMIN L. PURCELL: I move that the rules be suspended and that the Secretary be instructed to cast the ballot of the Association for Dr. Barnhouse as Third Vice-President.

PRESIDENT FARRELL: It has been moved and seconded that Dr. Barnhouse of Missouri be elected as Third Vice-President, and the rules suspended, and the Secretary instructed to cast the ballot for Dr. Barnhouse. All those in favor of the motion will signify by saying "Aye." Contrary "No." It is so ordered, and the Secretary will cast the ballot for Dr. Barnhouse.

The Secretary stated that he had cast the ballot of the Association for Dr. E. L. Barnhouse as Third Vice-President for the ensuing year, and the President thereupon declared him duly elected to that office.

PRESIDENT FARRELL: Whom do you desire to elect for your Treasurer?

MR. A. M. G. SOULE: I desire to place in nomination for the office of Treasurer Mr. George J. Weigle of Wisconsin.

The nomination was seconded.

MR. R. E. ROSE: I move that nominations be closed, and that the Secretary be instructed to cast the ballot of the Association for Mr. Weigle of Wisconsin.

The motion was seconded.

PRESIDENT FARRELL: It has been moved and seconded that nominations be closed, and that the Secretary be instructed to cast the ballot for Mr. Weigle as Treasurer for the ensuing year. All those in favor of the motion signify by saying "Aye." Contrary "No." The motion is carried, and the Secretary is so instructed.

The Secretary thereupon stated that he had cast the ballot of the Association for Mr. George J. Weigle as Treasurer, and the President thereupon declared him duly elected to that office for the ensuing year.

PRESIDENT FARRELL: There is one member of the Executive Committee whose term has expired, and we must elect a member to fill that vacancy or re-elect him.

MR. F. L. WOODWORTH: One of the distinct features, I think you will all agree with me, of this particular meeting has been the uniform courtesy and exceptional ability and clearness of vision along food lines shown by this year's President of the Association, Mr. Farrell. In order to give to this Association the continuance of his valuable services, and to follow the precedent that has been fortunately enforced in the past of placing the retiring President on the Executive Committee, I desire to nominate Mr. John J. Farrell of Minnesota as a member of the Executive Committee.

The nomination was seconded.

SECRETARY NEWMAN: Gentlemen, you have heard the nomination. Are there any further nominations? What is your pleasure?

MR. GEORGE L. FLANDERS: I move that the rules be suspended and that the Secretary be instructed to cast the ballot of the Association for Mr. Farrell.

SECRETARY NEWMAN: The motion is that the rules be suspended and that the Secretary be instructed to cast the ballot of the Association for Mr. Farrell as a member of the Executive Committee. Are you ready for the question? All those in favor of the motion signify by saying "Aye." Contrary "No." The motion is carried, and the Secretary begs to state that he has cast the ballot of the Association for Mr. John J. Farrell of Minnesota as a member of the Executive Committee.

PRESIDENT FARRELL: I want to thank you, gentlemen, and I will try to do all I can for the Executive Committee during the ensuing year.

The Committee on Coöperation has been increased from three to five members.

SECRETARY NEWMAN: I would like to place in nomination as a member of the Committee on Coöperation Mr. Benjamin L. Purcell of Virginia.

MR. FRANK A. JACKSON: I second the nomination.

PRESIDENT FARRELL: Are there any further nominations? If not, nominations will be closed. How do you wish to elect?

MR. BENJAMIN L. PURCELL: I would like to place in nomination the name of Mr. J. S. Abbott of the Bureau of Chemistry.

MR. W. B. BARNEY: I desire to place in nomination Mr. Fred L. Woodworth of Michigan.

MR. S. C. DINSMORE: I wish to place in nomination as a member of this Committee Mr. Maurice Groshon of Wyoming.

MR. J. M. MOORE: I should like to place in nomination Mr. R. E. Rose of Florida.

PRESIDENT FARRELL: You have selected five members, gentlemen. Are there any further nominations?

DR. W. W. RANDALL: I move that nominations be closed and that the Secretary be instructed to cast the ballot of the Association for the five nominees.

The motion was seconded.

PRESIDENT FARRELL: You have heard the motion, gentlemen, are you ready for the question? All those in favor will please indicate by saying "Aye." Contrary "No." The motion is carried, and the Secretary is instructed to cast the ballot.

The Secretary stated that he had cast the ballot of the Association for the five members named, as members of the Committee on Coöperation, and they were thereupon declared duly elected by the President.

PRESIDENT FARRELL: Now, gentlemen, you have been very kind and indulgent during this wonderfully hot weather, although not too hot for the corn, I think, and I wish to thank you for your attention and forbearance with the Chair, and I hope that as we part at this time to go home to our respective work we are all bringing something of value with us, and that you will go back better fitted, more enthusiastic and stronger in mind and be at our next Annual Convention. I wish to thank you for your indulgence to the Chair. If there is no further business, we will now stand adjourned.

Whereupon the meeting adjourned *sine die*.

AMONG THOSE PRESENT WERE

DELEGATES.

Alabama, J. M. Moore, Food and Drug Clerk.
Arkansas, John H. Page, Commissioner.
Connecticut, Frank H. Stadtmueller, Commissioner, and John P. Street, Chemist.
Florida, R. E. Rose, State Chemist.
Georgia, W. C. Dumas, State Chemist, and P. A. Methvin, Chief Food Inspector.
Illinois, J. B. Newman, Superintendent, Division of Foods and Dairies.
Indiana, H. E. Barnard, Commissioner.
Iowa, W. B. Barney, Commissioner.
Kentucky, J. O. La Bach, Acting Head and Chief Chemist.
Maine, A. M. G. Soule, Chief Deputy.
Maryland, W. W. Randall, Chief Chemist.
Michigan, F. L. Woodworth, Commissioner, and M. J. Smith.
Minnesota, J. J. Farrell, Commissioner.
Missouri, E. L. Barnhouse, Commissioner.
Nebraska, Otto Murschel, Deputy Commissioner.
Nevada, Sanford C. Dinsmore, Commissioner.
New Hampshire, Charles D. Howard, Chemist.
New Jersey, W. G. Tice, Chief Chemist.
New York, G. L. Flanders, Counsel.
North Carolina, W. M. Allen, State Food and Oil Chemist.
North Dakota, E. F. Ladd, Commissioner and State Chemist.
Oregon, J. D. Mickle, Commissioner.
Pennsylvania, James Foust, Commissioner, and William Frear, Chemist.
Rhode Island, Frank A. Jackson, Chairman.
Tennessee, Harry L. Eskew, Commissioner.
Virginia, Benjamin L. Purcell, Commissioner.
Wisconsin, George J. Weigle, Commissioner.
Wyoming, Maurice Groshon, Commissioner.
Washington, D. C., Carl L. Alsberg, Chief, Bureau of Chemistry; B. H. Rawl, Bureau of Animal Industry, and P. D. Cronin, Assistant to the Solicitor.

ASSOCIATE MEMBERS AND GUESTS.

J. S. Abbott	Washington, D. C.	U. S. Department of Agriculture.
Dana Ackerly	New York, N. Y.	Breed, Abbott & Morgan, Attorneys for National Wholesale Grocers' Association.
R. M. Allen	New York, N. Y.	Ward Baking Co.
John T. Ashcraft	Florence, Ala.	Legislative Committee, Interstate Cottonseed Crushers' Association.
H. A. Baker	New York, N. Y.	American Candy Co.
K. K. Bell	Chicago, Ill.	Calumet Baking Powder Co.
W. D. Bigelow	Washington, D. C.	National Canners' Association.
F. C. Blanck	Washington, D. C.	U. S. Department of Agriculture.
L. F. Brown	Milwaukee, Wis.	Feed Manufacturers' Association.
L. P. Brown	New York, N. Y.	Department of Health of New York City.
T. J. Bryan	Chicago, Ill.	Calumet Baking Powder Co.
W. C. Burnett	New York, N. Y.	U. S. Department of Agriculture.
J. R. Chittick	Chicago, Ill.	Jaques Manufacturing Co.
Wm. T. Creasy	Washington, D. C.	National Dairy Union.
R. E. Doolittle	Washington, D. C.	U. S. Department of Agriculture.
R. G. Gould	Chicago, Ill.	The American Food Journal.
B. F. Harris	New York, N. Y.	Pacific Coast Borax Co.
S. C. Henry	Philadelphia, Pa.	National Association of Retail Druggists.
J. Hortvet	St. Paul, Minn.	Dairy and Food Department.
Ellis Howland	New York, N. Y.	New York Journal of Commerce.
W. P. Jones	Washington, D. C.	Swift & Company.
W. C. Kirk	Chicago, Ill.	Armour & Company.
David Klein	Chicago, Ill.	State Food Commission.
O. D. La Dow	Rochester, N. Y.	Curtice Brothers Co.
G. F. Mason	Pittsburgh, Pa.	H. J. Heinz Co.
George McCabe	Chicago, Ill.	Swift & Company.
Charles F. McKinley	Chicago, Ill.	State Food Commission.
Jos. A. McNamee	Atlantic City, N. J.	Mayor's Office.
J. D. Miller	Chicago, Ill.	Sprague, Warner & Co.
A. V. H. Mory	Chicago, Ill.	Sears, Roebuck & Co.
Chas. E. North	New York, N. Y.	The North Public Health Bureau.
Isaac K. Phelps	Washington, D. C.	U. S. Department of Agriculture.
A. H. Porter	New York, N. Y.	Royal Baking Powder Co.
Morris A. Pozen	Washington, D. C.	City Health Department.
Frank Smith	Philadelphia, Pa.	Postum Cereal Co.
H. V. Stewart	Richmond, Va.	State Department of Agriculture.
W. E. Stokes	New York, N. Y.	Royal Baking Powder Co.
J. G. Sullivan	Philadelphia, Pa.	Franklin Sugar Refining Co.
Holgate Thomas	Fresno, Cal.	California Associated Raisin Growers.
L. M. Tolman	Chicago, Ill.	U. S. Department of Agriculture.
C. J. Tressler	Chicago, Ill.	Swift & Company.
T. B. Wagner	New York, N. Y.	Corn Products Refining Co.
Paul F. Webster	Buffalo, N. Y.	Larkin Company.
William B. Winslow	New York, N. Y.	Alart & McGuire.

THE AMERICAN FOOD JOURNAL

—with which was combined on St. Patrick's Day, 1917—

The American Food Manufacturer

There is no higher art than that which tends toward the improvement of human food.—*Henry Ward Beecher.*

Robert Gordon Gould, *Editor*

Vol. XII OCTOBER, 1917 No. 10

Errata.

Through the kindness of friends we are enabled to make a correction in one of the many figures appearing monthly in the retail price chart. Relying upon a reference work which, in the main, is above criticism we gave to canned string beans a food value which, unfortunately, it does not deserve. The error was probably originally caused by the misplacing of the decimal point as the incorrect figure is ten times the correct figure. In the September chart the average price per hundred calories of canned string beans is given at 1.36 cents. This figure should have been 13.6 cents. The October chart gives the correct figure, the average price per pound of 11.5 cents calling for an average price per hundred calories of 12.37 cents. With this exception we have so far failed to discover any inaccuracies in the chart.

Licensing System Growing.

Since our last issue sugar and meat products have been placed under federal control, public speculations in cottonseed done away with and future sales on the produce boards are to be discontinued. On another page of this issue is to be found the list of staples whose production or handling must, after November 1, be in the hands of licensees of Food Administrator Hoover. This list does not include bread. Federal regulation of the commercial baking industry is promised by Mr. Hoover but the definite plans therefor have not yet been anounced.

Metric Weights and Measures.

The metric system has made more progress in this country during the last six months than in the decade preceding the war. The awakening of the entire export trade to the necessity of adopting the system is the most prominent phase of the situation, but the movement is much more far-reaching and extends throughout the industries. American manufacturers have found it easy to fill orders completely executed in the metric system amounting to hundreds of millions of dollars. It is inevitable that, sooner or later, the international metric system of weights and measures will be adopted by all nations. The sooner the change is made the more easily can it be carried out. The profound readjustments that will be necessary after the war will provide a most fitting opportunity for the development of plans for making the change with the least possible confusion. Many firms now give metric equivalents on their packets and labels. The National Wholesale Grocers are having printed a hundred million labels giving metric equivalents. The Shredded Wheat Company will give the metric equivalents on all their packets, while Messrs. Runkel Brothers will give the metric as well as the English weight of all their chocolates. The United States Government are using the metric system almost exclusively in the manufacture of aeroplanes. Many firms have expressed their willingness to use the metric system and urge its general adoption, for the betterment, not alone of foreign, but domestic commerce.

The Milk Situation.

The present high and rapidly increasing cost of milk is arousing considerable interest throughout the country. In many cities investigations of the milk situation have been carried out, and in some cities sensational raids have been directed against the offices of milk producers' associations and similar bodies. Those who speak for the Government have been quoted as claiming that many dairy farmers whose ancestral acres came down to them without a break from governmental land grants are, when computing the cost of milk production, giving arbitrary values to this land based upon the highest prices obtainable for land in the vicinity. This action, in turn, tends to standardize at a high figure the acreage of dairy farms far and near, thereby creating a burden for the milk to carry greater than should be the case. If this state of affairs is at all widespread it should, of course, be remedied if a remedy can be found which does not work injustice to the farmer. For many years the farmer has been urged to become more businesslike in his transactions, and it would seem that now when he has placed a book value on land which in reality cost him nothing he is being criticised by the same government which a few years ago was endeavoring to get him to open the set of books in question.

It is natural to expect a demand for cheap milk from the cities. For that reason the activities of city prosecutors and ephemeral municipal vigilance committees may properly be discounted on the grounds of bias. When, however, a state which is as intimately concerning with dairying as is Wisconsin is reported to have acted through its attorney general to the end that about a hundred of its dairymen are indicted on a charge of conspiracy unfairly to raise the price of milk, or when as responsible an official as the attorney general of Illinois openly charges that the milk producers "planted" a "trusty" man in the Food Administration, the question presents an entirely different aspect. These charges will be followed with great interest by all who are interested in the price of the one indispensable—milk.

Helen Louise Johnson Now an Editor-in-Chief.

Late in September the Fourth Estate was informed that, having purchased the General Federation Magazine, the directors of the General Federation of Women's Clubs had appointed as editor-in-chief Miss Helen Louise Johnson of Watertown, N. Y. The office of the new editor-in-chief is in Washington, D. C., although the business office of the magazine is at 40 East Twenty-third Street, New York City. Those of us who know Miss Johnson feel confident that she will make of this periodical which has entrée to so many American homes the sort of magazine which that periodical might have been but never was. In the opinion of this JOURNAL there is a real opportunity for a magazine of constructive interest to intelligent housewives, provided it be guided by the steady eye and firm hand needed to steer resolutely between the Scylla of strident femininism and the Charybdis of the present day so-called woman's magazine. It is to be hoped that the periodical starting out under Miss Johnson's able editorship will avail itself of this opportunity.

Read Your Labels.

The best thing that could happen to the honest manufacturer of foodstuffs would be to have every consumer read carefully each label—and especially that particular part of the label having to do with the amount of the contents of the package. Since the net weight law went into effect it has been compulsory that the manufacturer should plainly indicate on the label the amount of food contained in the package to which the label is affixed. The duties of the food inspector end with seeing to it that the amount stated on the label is the true amount as determined by an occasional test weighing. But that is not all there is to the story. In these days of high-priced raw materials some not over-scrupulous manufacturers are reducing the amount of food sent out in containers to which the housewife has become accustomed, complying fully with the law in that the reduced amount is honestly stated on the label and relying for safety upon the disinclination of the housewife to take cognizance of the alteration in the phraseology of the label. In this way an unfair advantage is taken of the manufacturers who bluntly, as the need for it compels them to do, raise the price of their product but do not send out partially filled packages. Foods are sure to cost more for a few years to come, and in the opinion of this JOURNAL the manufacturers of packaged foods delayed too long in raising their prices. An advance in price under the present conditions is nothing of which the manufacturer should be ashamed, nor should he seek to "get by" by cutting quantities rather than openly raising prices. Theoretically there may be no difference between less goods for the same money and a higher price for the same amount of goods; in practice there is a very great difference.

Calories.

Without giving to the calorie basis of measuring food an importance it does not deserve and with full recognition of the fact that the calorie standard is not in itself a complete measure of any food, it still is a fact that the calorie unit of measure is the best unit we now have. It is the only one that is scientific. When, therefore, we hear otherwise intelligent individuals exclaim "Calories give me indigestion," or when public speakers seek to gain a ripple of applause from the audience by retelling any one of the many variants of the quip based upon the query, "what is a calorie?" we are inclined to be a bit suspicious. We would be the last to question the sincerity of scientific workers in the field of food who maintain, and rightly, that the calorie standard is a working hypothesis and nothing more. Indeed, we agree with them in that statement and shall continue to use it as a working hypothesis until something better is presented, at which time the defects of the present standard will be remedied—action that has taken place in practically every branch of exact knowledge. When, however, an attempt to belittle the calorie standard, or to laugh it out of court, is made by those concerned with the commercial side of the food industry, one should be on his guard. Those who scorn the calorie standard may be honestly reactionary; but the chances are that the product for which they speak will not stand the scrutiny of a calorie evaluation. Not every food can sell at the lowest cost per calorie and there is no necessity that all foods should sell on a relatively equal basis per calorie, but the energizing value of all foods should be known and expressed in terms based upon the calorie standard, permitting the purchaser to form his own conclusions as to price ratios.

"Stop-Loss" Dehydration.

Not the least valuable feature of commercial dehydration is that it can and should be used to save from destruction the very considerable amount of perishable food which, while in the hands of the dealers, reaches the stage where twenty-four hours or less will see it on the road to the dump. This does not mean that the food in question is in the incipient stages of decay. On the contrary, it is in the best stage of maturity. It is safe to say that in all large cities much perishable food can be found each evening, so fully matured that before it can be sold through the ordinary channels of trade decay will set in. There is no reason why food of this sort should not be delivered at the close of each day's business to a nearby commercial dehydrating plant and there desiccated and saved for future use. Particularly would this be true of the situation every Saturday night. This office will be glad to hear from food control or conservation officials who are interested in this matter.

Grocery Specialties and Food Control.

So far one of the most important instances in which Food Administrator Hoover has begged to be excused from exercising the tremendous power which is his has to do with the price regulation of food products known by the general name of grocery specialties. The matter of such specialties is of interest to this Journal and to many of its readers. Food specialties are, as a rule, the product of houses devoted exclusively to their manufacture, are excellent in quality and are more often than not generously advertised. That the Food Administrator characterizes them as luxuries and does not include them among the staple foods of the nation is none too flattering to the manufacturers thereof and none too reassuring to those of us who believe in the efficacy of specialized function, big unit production and advertising as an economical means of selling. The American Specialty Manufacturers' Association is to hold its annual convention in Atlantic City late in October. It will be of interest to see what action they take in connection with Mr. Hoover's characterization of their product and his statement, as reported in the newspapers, that specialties are at all times in competition with bulk goods and that those who buy such specialties are able to pay whatever slight advance in cost there may attach to them. Those who have been reading the interesting story told by the monthly price chart published in the Journal need not be told that in this instance Mr. Hoover is treading on thin ice. There are many cases, and before the war their number was increasing steadily, in which specialties have driven competing bulk goods from the market. Is it not possible that specialty manufacturers will make a serious blunder if they permit the Food Administrator to exclude them from the honorable ranks of the organized food industry on the grounds that they are selling luxuries? Packaged goods have none too many friends among economists as matters now stand. If grocery specialties are officially listed as luxuries it will take many long years of hard work by their friends to win for them the place they deserve in the scheme of things. There is a certain dignity in being *of* the food industry; there is no such dignity attaching to those who are merely *in* the food industry.

The National Research Council.

In 1916, at the request of the President of the United States, the National Academy of Sciences organized the National Research Council, which has since early in 1917 been acting as a department of the Council of National Defense. Its objective is the coördination of the scientific resources of the country through the active coöperation of all agencies having research facilities. The work has been subdivided by the appointment of more than twenty committees, whose personnel includes able representatives from the staffs of the various universities and the museums, from the several departments of the Government engaged in scientific research and from laboratories maintained by industrial interests. Of these committees that having to do with botany most closely strikes home to the readers of this Journal. The members of the Botanical Raw Products Committee are: E. M. East, Chairman, Professor of Experimental Plant Morphology, Harvard University; Oakes Ames, Assistant Professor of Economic Botany and Director of the Botanic Garden, Harvard University; L. H. Dewey, Botanist in Charge of Fibre Investigations, U. S. Department of Agriculture; Henry Kraemer, Professor of Botany and Pharmacognosy, Philadelphia College of Pharmacy; Geo. T. Moore, Director of the Missouri Botanic Garden; John E. Teeple, a chemical engineer of New York City; and W. P. Wilson, Director of the Philadelphia Commercial Museum.

In a word, the duty of this committee is to serve as a clearing house where manufacturers needing raw products of a botanical nature may obtain information regarding them. Its proposed activities are many and various, including the collection of agricultural, botanical and commercial data on all species and varieties of plants having an economic value (exclusive of food staples); the dissemination of such information among importers and manufacturers; the investigation of requirements of the trade for known raw materials; the discovery of new geographic sources of plants necessary to the trade; the development of plans for meeting the needs of industry by the cultivation of economic plants in the United States; the initiation of investigations calculated to discover the value of conventional equivalents and substitutes for raw products of a botanical nature; the discovery and investigation of the value of new equivalents and substitutes; the investigation of the requirements of the trade for new raw materials; the suggestion of new species as possibly meeting trade requirements and the initiation of the proper investigations as to whether or not they meet these requirements; and the suggestion of new uses for botanical raw products. This committee will avail itself of valuable work already performed along these lines by the Philadelphia Commercial Museum, the Laboratory of Economic Botany of the Bussey Institution of Harvard University, the Bureau of Foreign and Domestic Commerce of the U. S. Department of Commerce, the Laboratory of Pharmacognosy of the Philadelphia College of Pharmacy, the office of Fibre Investigations of the U. S. Department of Agriculture and the Missouri Botanic Garden.

As to the importance of this work, no argument is necessary. The food industry, with the exception of marine products, is based upon botany. While this committee has pointedly excluded food staples from its list of activities, the number of food products dependent, either directly or indirectly, upon products of the soil is tremendous. Many such products have until recently been imported but must in the future either be produced in this country or be excluded from consideration, and substitutes therefor provided. It is as "friend, philosopher and guide" to the American manufacturer in his present quandary that the Botanical Raw Products Committee of the National Research Council, whose chairman lives at Forest Hills, Massachusetts, will perform its most important function.

All Essential Foods Now Under Federal Control

Government control of foodstuffs has been extended to take in virtually all the essential articles of diet by a proclamation issued recently by President Wilson directing the food administration to license after Nov. 1 the manufacture, storage, importation and distribution of some twenty prime commodities. Many small dealers are exempted, as are farmers, who were especially excepted in the food control law.

This move was preceded by a statement by the food administration declaring it was necessary to prevent unreasonable profits and to stop hoarding and speculation.

After quoting the food control act, under which the action is taken, the President's proclamation says: "It is essential, in order to carry into effect the purpose of said act, to license the importation, manufacture, storage and distribution of necessaries to the extent hereinafter specified. The list follows:

"All persons, firms, corporations, and associations engaged in the business either of (1) operating cold storage warehouses (a cold storage warehouse, for the purpose of this proclamation, being defined as any place artificially or mechanically cooled to or below a temperature of 45 degrees Fahrenheit, in which food products are placed and held for thirty days or more); (2) operating elevators, warehouses, or other places for storage of corn, oats, barley, beans, rice, cottonseed, cottonseed cake, cottonseed meal, or peanut meal; or (3) importing, manufacturing (including milling, mixing, or packing); or distributing (including buying or selling) any of the following commodities:

"Wheat, wheat flour, rye, or rye flour.

"Barley or barley flour.

"Oats, oatmeal, or rolled oats.

"Corn, corn grits, cornmeal, hominy, corn flour, starch from corn, corn oil, corn sirup, or glucose.

"Rice, rice flour.

"Dried beans.

"Pea seed or dried peas.

"Peanut oil or peanut meal.

"Soy bean oil, soy bean meal, palm oil, or copra oil.

"Oleomargarine, lard, lard substitutes, oleo oils, or cooking fats.

"Milk, butter, or cheese.

"Condensed, powdered, or evaporated milk.

"Fresh, canned, or cured beef, pork or mutton.

"Poultry or eggs.

"Fresh or frozen fish.

"Fresh fruits or vegetables.

"Canned peas, dried beans, tomatoes, corn, salmon, or sardines.

"Dried prunes, apples, peaches, or raisins.

"Sugar, sirups, or molasses.

"Excepting, however, the following:

"Operators of all elevators or warehouses handling wheat or rye and manufacturers of the derivative products of wheat or rye, who have already been licensed.

"Importers, manufacturers and refiners of sugar and manufacturers of sugar sirups and molasses, who have already been licensed.

"Retailers whose gross sales of food commodities do not exceed $100,000 per annum.

"Common carriers.

"Farmers, gardeners, co-operative associations of farmers or gardeners, including live stock farmers, and other persons with respect to the products of any farm, garden, or other land owned, leased, or cultivated by them.

"Fishermen whose business does not extend beyond primary consignment.

"Those dealing in any of the above commodities on any exchange, board of trade, or similar institution, as defined by section 13 of the act of Aug. 10, 1917, to the extent of their dealings on such exchange or board of trade.

"Millers of corn, oats, barley, wheat, rye, or rice operating only plants of a daily capacity of less than seventy-five barrels.

"Canners of peas, dried beans, corn, tomatoes, salmon, or sardines, whose gross production does not exceed 5,000 cases per annum.

"Persons slaughtering, packing and distributing fresh, canned or cured beef, pork or mutton, whose gross sales of such commodities do not exceed $100,000 per annum.

"Operators of poultry or egg packing plants, whose gross sales do not exceed $50,000 per annum.

"Manufacturers of maple sirup, maple sugar and maple compound.

"Ginners, buyers, agents, dealers or other handlers of cottonseed who handle yearly between Sept. 1 and Aug. 31 less than 150 tons of cottonseed.

"Are hereby required to secure on or before Nov. 1, 1917, a license, which license will be issued under such rules and regulations governing the conduct of the business as may be prescribed.

"Applications for the license must be made to the United States food administration, Washington, D. C., law department, license division, on forms prepared by it in advance for that purpose, which may be secured on request.

"Any person, firm or corporation or association other than those hereinbefore excepted, who shall engage in or carry on any business hereinbefore specified after Nov. 1, 1917, without first securing such license will be liable to the penalty prescribed by said act of congress."

The penalties prescribed for violation of the act are a fine of $5,000 or imprisonment of not more than two years.

Federal Food Commissioners.

Since the publication in the September issue of the JOURNAL of the list of Federal food commissioners there have been made public by Food Administrator Hoover the following additional appointments:

COLORADO—Thomas B. Stearns, Denver.
FLORIDA—Braxton Beacham, Orlando.
IDAHO—R. F. Bicknell, Boise.
MAINE—Leon S. Merrill, Orono.
MICHIGAN—George A. Prescott, Tawas City.
MINNESOTA—A. E. Wilson, Minneapolis.
MISSISSIPPI—P. M. Harding, Vicksburg.
NEW JERSEY—James F. Fielder, Jersey City.
NORTH DAKOTA—E. F. Ladd, Fargo.
OHIO—Fred Craxton, Columbus.
TENNESSEE—Thomas Bragg, Montgomery.
TEXAS—E. A. Peden, Houston.
WEST VIRGINIA—Earl W. Oglebay, Wheeling.

The Manufacture of Meat Food Products

By Ralph D. MacManus,
of Armour & Company, Chicago.

THE preparation of foods for human consumption is the oldest business on earth. Nature provides little in the way of food which is at its best without some process of manufacture. Wheat would be of relatively small importance as a food for humans if it were not manufactured into flour. Meat, too, is a highly manufactured food product, in fact, the business which has grown up around the preparation of meat ranks among the world's biggest industries.

Millions upon millions of dollars are invested in plants and factories of various kinds which take the living meat animals and make them into meat food products ranging from fresh pork to dried beef and including variations and varieties almost too numerous to mention.

Although meat animals have been slaughtered and eaten from time immemorial, the commercial manufacture of meat food products is a matter of recent years. It began scarcely more than a generation ago with the development of the meat packing industry. Manufacturing then was confined to pickling pork and curing beef and the work was done during the winter months because meat could not be kept from spoiling in warm weather. Then came the development of the refrigerator and the refrigerator car and it was no longer necessary to stop the manufacturing processes just because the weather changed.

Then followed in rapid succession the changes in meat food manufacturing processes which lifted the business to a plane where it is now recognized as being one of, if not the most, efficiently conducted business in the world. The story of this development reads like a romance.

"Meat packers" is no longer a proper term to apply to the firms engaged in the meat food products business. They are now purveyors of food stuffs because the products that are now handled include almost everything necessary to sustain life and to provide many of the luxuries as well. Meat foods, however, are still the basis of the business and the processes which have been developed for efficient handling and manufacturing of them are noteworthy.

Handling the Cattle.

Meat animals of all kinds come to the stockyards at the packing centers and there they are purchased by the packers from the commission men who act for the farmers and stock raisers. The slaughtering of cattle, hogs and sheep goes on practically all the time at the great packing centers, but the processes vary a little. The plant of Armour and Company furnishes an opportunity to see this manufacturing carried on at its highest efficiency. Armour's cattle, after being purchased, are permitted to rest twenty-four hours or longer in quiet pens. They are then driven up a chute into an overhead runway which leads across the broad acres of stockyards to the killing floor at the top of one of the factory buildings. The runway terminates in a series of three stalls, each with a capacity of two or three steers. When all are filled and the doors closed, men of powerful physique standing on a ledge above the stalls stun the steers with well directed blows from heavy sledges and a door in the side of the stalls opens, permitting the animals to roll through to the floor a few inches lower. Some idea of the immensity of the operation carried on in this room may be had from the fact that over 350 cattle per hour are killed and dressed and their carcasses disposed of here.

Beef.

The minute a steer rolls out from the pen, the hind legs are shackled and he is hoisted by a chain and suspended on a roller which runs upon a trolley line. A workman of long experience in his line sticks the animal and a torrent of blood gushes forth. Every effort is made to avoid unnecessary cruelty in this and all other processes of slaughtering.

After a wait of six minutes, in which thoroughly to bleed, the steer is moved along upon the trolley to the end of a great moving platform which, by the way, is an exclusive feature of Armour packing houses. This revolving belt-like iron table is ten feet wide and two hundred and sixty-five feet long and it makes a complete revolution every twenty minutes. The under portion of the belt goes through a sterilizing process so that when it comes up for service again it is clean and sterile. Two cattle per minute are lowered onto this platform and there is room for thirty-six animals on it.

Photograph from Armour & Co.
GOVERNMENT INSPECTOR ON THE JOB.

Sixty-five men are constantly at work upon the moving platform, each performing his particular part in the dressing of each steer as the platform moves him along with it and stepping quickly back to the next in time to repeat the operation. On this platform the steer is lowered until he lies on his back. While in this position, the animal is partly skinned, the head removed and feet cut off at the knees. The head and feet, when separated, are numbered with tags and sent to another station for further handling. The purpose of the tags is to identify the several parts as belonging to the particular carcass from which they were removed until after the ever-present government inspector has had a chance to ascertain whether or not the animal is in healthy condition and fit for human food.

Photograph from Armour & Co.
AFTER THE KNOCKOUT.

If the inspector finds that the animal is diseased, the whole carcass, including the head and feet, are rejected and allowed to go no further in the process of dressing. Otherwise, the carcass is swung from the moving table and passed along to the trolley again and, after the viscera are removed and the carcass washed, it leaves the table and moves on to the next station where strong men with heavy axes split the finished carcasses down the middle. Then the split halves run the gauntlet of an army of other workmen each performing his specific part of washing, trimming or inspecting, before finally coming to rest in a refrigerating room. Here they are cooled and "ripened" at a temperature ranging from 34° to 36° Fahrenheit. Hundreds of carcasses are hung in long tiers with aisles between and the impression one experiences upon entering is extremely refreshing and pleasing. Usually two sets of coolers are used, one to get rid of the animal heat and the other to thoroughly chill and keep cool for several days after which the carcasses are ready to begin their journey to the branch houses which, in turn, send them to the retail stores.

Pork.

Hogs are made into pork by a process that is very interesting. Driven in lots of fifty into the slaughter room, the animals find themselves in the vicinity of a huge, slowly revolving wheel, ten feet high. This is variously referred to in the packing house as the hoisting wheel, the wheel of fortune and the Ferris wheel. On its outer rim, on both sides, are attached a number of three-foot chains, six to a side, which swing loosely downward as the wheel turns. Each of these chains, as they come down, is fastened about the hind leg of one of the hogs. The wheel then lifts him, head downward, and his chain is automatically moved onto a trolley rail, over which he glides smoothly and noiselessly to the hands of the executioner a few feet away.

A skillful thrust with the knife severs the jugular vein and while the animal moves slowly along, the blood escapes from his carcass. The Government regulations require that every animal be thoroughly bled and devoid of life before being plunged into the scalding tank for the purpose of loosening the hair. The water in the scalding tank is kept below the boiling point, but is hot enough to do its work in a few minutes. Afterwards the hog is sent through a de-hairing machine, some 24 feet long and 12 feet high and equipped with revolving rubber beaters. In passing through, these beaters come in contact with the hog and remove all the hair, scruf and dirt. Quite a metamorphosis takes place in this machine and when the hog comes out it is no longer offensive to the eye; instead is clean, white and smooth.

From the de-hairing machine the animal goes back onto a trolley along which he moves while dozens of men work on him. He is singed, washed and disemboweled and then split into two portions in remarkably short time. Likewise, he is inspected by Government experts at various stages on this journey. At its completion, the hog goes to the chilling room where he remains for two days before going to the cutting room.

Photograph from Armour & Co.
ROCKERS PREPARING SAUSAGE MEAT.

Mutton, Lamb and Veal.

The handling of sheep and veal is sufficiently similar to that of cattle and hogs to make unnecessary special descriptions. They are handled in a most efficacious way with an eye to using everything on or about them to best advantage.

The whole process of slaughtering meat animals and making them into fresh meat is so efficiently con-

Photograph from Armour & Co.

SAUSAGE MEAT BEING STUFFED INTO CASINGS.

ducted as to appear very simple. The manufacturing of the various kinds of fresh meat into a multitude of meat food products is not so simple, however. Large numbers of employes use some very intricate machinery and highly developed processes.

Sausage Making.

The making of sausage is one of the most interesting phases of the meat food manufacturing industries. Sausage, it should be explained, is made from trimmings and other portions of meat animals which do not lend themselves readily to sale in their natural condition. There is much excellent meat on the carcass of a meat animal which cannot be sold in the form of steaks or roasts or loins or the other cuts that the housewife generally wants. Sausage has proved to be the best way to conserve these valuable portions which might otherwise go to waste. Sausage making requires a goodly share of the space at a modern packing plant. Besides the rooms in which the actual making of the sausage takes place, there must be smoke houses and spacious drying rooms for the various kinds of summer sausage.

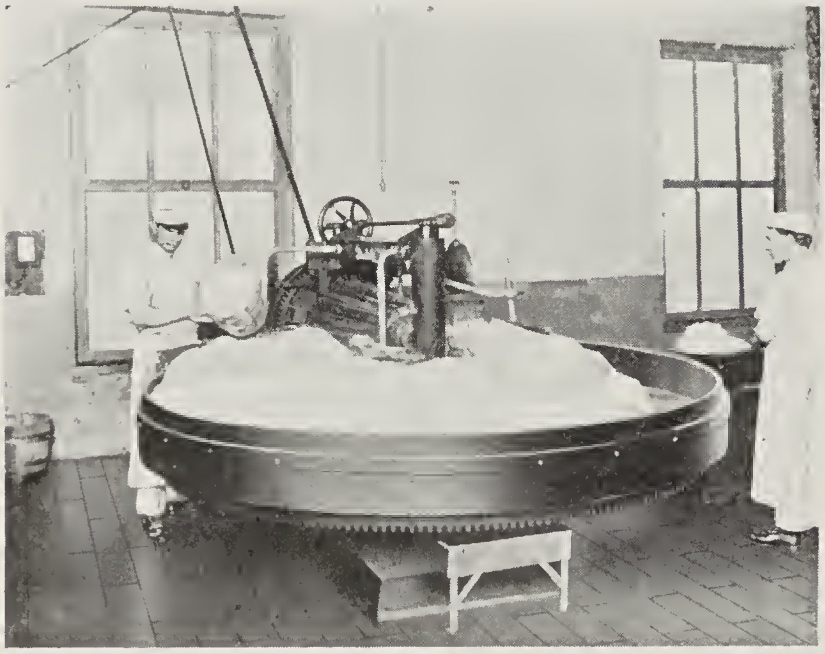
Sausage comes under two general headings—dry sausage and fresh sausage. Fresh sausage leaves the factory with the meat either raw, as in the case of fresh pork sausage, or parboiled. It is intended for immediate consumption, as it cannot be kept wholesome for any great length of time. Dry or summer sausage, on the other hand, requires from six weeks to nine months aging before it is ready to be eaten. It can be kept wholesome for a period of many months according to the skill exercised in its preparation.

Meat intended for sausage goes to the factory fresh from the killing and cutting floors. Chill rooms are provided to permit the escape of animal heat and the meat is allowed to season for a period of hours before going to the room in which it is ground or cut up and mixed. The various kinds of sausage result from the mixing of different proportions and kinds of sausage meat.

The beef intended for the sausage factory after arriving from the chill room is ground in a machine. Pork is not ground as is the beef. The heat occasioned by the grinding process would be injurious to it, so it is cut up by machines designed to work without producing heat. For dry or summer sausage the beef is coarsely ground and, together with carefully measured portions of pork, is put upon the "rocker," which is a revolving table under big knives that rock back and forth and cut the meat without making it soft or mushy. The various ingredients of dry sausage, other than beef and pork—including seasoning, cereals and the like—are added to the meat while it is on this rocker and the whole is ground up and thoroughly mixed, after which it is sent to a chill room and permitted to season for a short time. It is then ready to be put into the containers, most of which are casings made from the intestines and internal organs of the various meat animals. The preparation of these casings is no small mark of the sausage industry. They have to be thoroughly washed and cleansed and cured in salt. Sheep casings are used for the best fresh pork sausages and for various kinds of fresh sausages. Hog casings are slightly larger than sheep casings and are used for link sausage, "weiners" and the like. Beef casings furnish the covering for most of the larger varieties of sausage.

Before being filled with meat all the casings have to be carefully inspected and thoroughly washed inside and out. After being filled with the meat the casings are tied up and treated in accord with the method for each particular kind. Dry sausage is seasoned for a short time, then goes to the smokehouse and then to the drying room, whence it emerges later, ready for consumption. Dry sausages cannot be put out in a hurry. On the other hand, fresh sausages cannot be kept long at the factory. Fresh pork sausages, for instance, can go out the same day the meat is put into the casings. Other varieties of fresh sausage go direct to the smokehouse for a short time and are then parboiled in huge vats of hot water. After being quickly chilled, they, too, are ready for shipment.

A book could easily be written on the subject of sausage making and the various kinds if put into a list would occupy many columns of reading matter. Sausage is a relatively cheap food because there is no waste to it and because it is as palatable and nutritious as any portion of the meat animals from which it came.



Photograph from Armour & Co.

OLEOMARGARINE CHURN.

Ham and Bacon.

Smoked ham ranks high among the manufactured meat food products. Most concerns pay particular attention to their hams and take great pride in them and put them on the market under special brands and labels. After being neatly trimmed and rounded, the hams are sorted and graded and made ready for the pickling process. This process consists of putting the hams in huge vats—each of which is capable of holding nearly fifteen hundred pounds of ham—in which they are immersed in the pickling fluid and permitted to remain for from 60 to 90 days. The exact composition of the pickling fluid which effects this cure is usually a trade secret. The best formulas require that all ingredients be filtered, even the water. When they are mixed and ready for use, they make a perfectly clear liquid. The juices of the hams combined with the pickle to effect the curing so that the hams are actually cured in their own juices.

After coming from the pickling vats, the hams are put through a soaking process which removes the salt from the exterior and cleanses them so that they will take a better color in the smoking process. Just before being put into the smokehouse, they are again thoroughly washed in warm water.

Smokehouses are, in a general way, merely rooms in which the hams are subjected to a smoke bath for from 48 to 72 hours. The hams are hung on a "ham tree" which keeps each one separate and which can be moved into the smokehouse on a trolley. These smokehouses are generally two stories in height with a fire pit constituting a sort of basement. The floors consist of gratings which permit the smoke to percolate readily. On the floor of the fire pit, piles of hickory logs are arranged at intervals and kept slowly burning during the smoking. Toward the finish of a batch, hickory sawdust is thrown on the fire to give a denser smoke, thereby imparting the rich brown color which is so necessary to good hams.

The smoking process requires utmost watchfulness. Sufficient heat is necessary to close the pores enough to keep in the juices while too much heat must be avoided as it would melt the fat. Armour and Company have a process which permits of the ham being smoked in a sort of stockinet covering which is of service in retaining the juices in the ham which might otherwise drip out in the smoking room.

Bacon is cured in much the same way as hams.

Oleomargarine.

Oleomargarine has become a very important food product in the last few years and especially so since the price of butter began going skyward. The basis of oleomargarine is pure, sweet, beef suet combined with fresh, crisp leaf fat and pasteurized milk.

The beef suet goes to the oleo factory and is sliced into small pieces and cooled to a temperature of 40 degrees Fahrenheit, after which it is hashed and melted at a very low temperature. From it comes oleo oil. From the leaf fat is secured an oil known as neutral which is pure, sweet, odorless and tasteless. At the oleomargarine factory the oleo oil and the neutral are blended at the proper temperature with pasteurized milk. The mixture is then churned together in the same manner as butter is made.

The blended material runs from the churn, through a stream of pure, filtered ice water, into a sterilized wooden receptacle, where it is allowed to stand in a tempering room over night, during which time the flavor develops. From here it is moved into huge rotary mixing machines where it is worked to expel moisture and blended thoroughly with salt in the

Photograph from Armour & Co.

HAMS ARE CURED IN HICKORY WOOD SMOKE.

proper proportion. The oleomargarine then goes to the molding room, where it is made into bricks and rolls without being touched by hand. Expert manipulators handle it only with sterilized wooden paddles. From the molding room the oleomargarine goes to a cooling room, where it remains at a temperature of 30 degrees Fahrenheit until solid enough to wrap, after which it is ready for shipment.

Canned Goods.

Any story on the manufacture of meat food products which failed to touch on canned goods would be most incomplete. Great quantities of meat are sent out from the packing plants in tins which effectually preserve them for use at any future time desired. Most of these meats are cooked and ready to serve. They are so prepared as to retain all of the rich meat juices and the original fine flavor in so far as is possible.

Vacuum and automatic machines are used for sealing, soldering and labeling the cans, one of the humanlike labeling machines alone having a daily capacity of 160,000 tins.

Manicurists, who see that the hands and nails of all operatives are perfectly clean, are a necessary part of the force in the canned goods department of big food factories. "Keep Clean" is a rule made necessary by the strict Government inspection which attends the manufacture of food products meant for interstate commerce.

As a result of many improvements in machinery and processes, the big food factories of today turn out meat for all occasions and purposes. Fresh and cured, cooked and manufactured. To name all the kinds of manufactured meat food products and to describe the process of manufacture would require volumes. Need for conservation and competition has resulted in this general rule: *Every edible portion and part of the meat animal is made into meat food for human consumption and the greatest care is exercised in making each meat food of the very highest quality possible.*

Cleanliness is strictly enforced, through the plant. Following each day's operations the floors are thoroughly cleansed by flushing with hot water. Knives, saws and cleavers used on the products are subjected to frequent, regular and thorough cleansing and disinfecting. The frocks worn by the men are changed daily and are kept as clean as the character of their work permits. There are rigid rules regarding personal cleanliness.

How the inedible portions of meat animals are utilized and made profitable rightly belongs in another story. It is a romantic tale of by-product utilization—a sort of co-partnership with the great meat food product industry.

Beverage Section of the New Revenue Law

The only part of the Revenue Law which applies particularly to the food industry is Title III, War Tax on Beverages, Sections 300 to 315 inclusive, which are printed immediately below. Sections 601 and 602 are added as they cover the matter of the manner in which returns shall be made and taxes paid. While this law is fairly complex, it is not impossible of understanding after a careful reading. There are, however, some minor points which the text does not cover specifically. Those of our readers who are interested in having any of these matters explained are invited to send their query to this office.—*Editor's Note.*

An Act to provide revenue to defray war expenses, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled:

Title III.—War Tax on Beverages.

Sec. 300. That on and after the passage of this Act there shall be levied and collected on all distilled spirits in bond at that time or that have been or that may be then or thereafter produced in or imported into the United States, except such distilled spirits as are subject to the tax provided in section 303, in addition to the tax now imposed by law, a tax of $1.10 (or, if withdrawn for beverage purposes or for use in the manufacture or production of any article used or intended for use as a beverage, a tax of $2.10) on each proof gallon, or wine gallon when below proof, and a proportionate tax at a like rate on all fractional parts of such proof or wine gallon, to be paid by the distiller or importer when withdrawn, and collected under the provisions of existing law.

That in addition to the tax under existing law there shall be levied and collected upon all perfumes hereafter imported into the United States containing distilled spirits, a tax of $1.10 per wine gallon, and a proportionate tax at a like rate on all fractional parts of such wine gallon. Such tax shall be collected by the collector of customs and deposited as internal revenue collections, under such rules and regulations as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, may prescribe.

Sec. 301. That no distilled spirits produced after the passage of this Act shall be imported into the United States from any foreign country, or from the West Indian Islands recently acquired from Denmark (unless produced from products the growth of such islands, and not then into any state or territory or district of the United States in which the manufacture or sale of intoxicating liquor is prohibited), or from Porto Rico, or the Philippine Islands. Under such rules, regulations, and bonds as the Secretary of the Treasury may prescribe, the provisions of this section shall not apply to distilled spirits imported for other than (1) beverage purposes or (2) use in the manufacture or production of any article used or intended for use as a beverage.

Sec. 302. That at registered distilleries producing alcohol, or other high-proof spirits, packages may be filled with such spirits reduced to not less than one hundred proof from the receiving cisterns and tax paid without being entered into bonded warehouse. Such spirits may be also transferred from the receiving cisterns at such distilleries, by means of pipe lines, direct to storage tanks in the bonded warehouse and may be warehoused in such storage tanks. Such spirits may be also transferred in tanks or tank cars to general bonded warehouses for storage therein, either in storage tanks in such warehouses or in the tanks in which they were transferred. Such spirits may also be transferred after tax payment from receiving cisterns or warehouse storage tanks to tanks or tank cars and may be transported in such tanks or tank cars to the premises of rectifiers of spirits. The Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, is hereby empowered to prescribe all necessary regulations relating to the drawing off, transferring, gauging, storing and transporting of such spirits; the records to be kept and returns to be made; the size and kind of packages and tanks to be used; the marking, branding, numbering and stamping of such packages and tanks; the kinds of stamps, if any, to be used; and the time and manner of paying the tax; the kind of bond and the penal sum of same. The tax prescribed by law must be paid before such spirits are removed from the distillery premises, or from general bonded warehouse in the case of spirits transferred thereto, except as otherwise provided by law.

Under such regulations as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, may prescribe, distilled spirits may hereafter be drawn from receiving cisterns and deposited in distillery warehouses without having affixed to the packages containing the same distillery warehouse stamps, and such packages, when so deposited in warehouse, may be withdrawn therefrom on the original gauge where the same have remained in such warehouse for a period not exceeding 30 days from the date of deposit.

Under such regulations as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, may prescribe, the manufacture, warehousing, withdrawal and shipment, under the provisions of existing law, of ethyl alcohol for other than (1) beverage purposes or (2) use in the manufacture or production of any article used or intended for use as a beverage, and denatured alcohol, may be exempted from the provisions of Section 3283, Revised Statutes of the United States.

Under such regulations as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, may prescribe, manufacturers of ethyl alcohol for other than beverage purposes may be granted permission under the provisions of Section 3285, Revised Statutes of the United States, to fill fermenting tub in a sweet-mash distillery not oftener than once in 48 hours.

Sec. 303. That upon all distilled spirits produced in or imported into the United States upon which the tax now imposed by law has been paid, and which, on the day this Act is passed, are held by a retailer in a quantity in excess of 50 gallons in the aggregate, or by any other person, corporation, partnership, or association in any quantity, and which are intended for sale, there shall be levied, assessed, collected and paid a tax of $1.10 (or, if intended for sale for beverage purposes or for use in the manufacture or production of any article used or intended for use as a beverage, a tax of $2.10) on each proof gallon, and a proportionate tax at a like rate on all fractional parts of such proof gallon: *Provided*, That the tax on such distilled spirits in the custody of a court of bankruptcy in insolvency proceedings on June 1, 1917, shall be paid by the person to whom the court delivers such distilled spirits at the time of such delivery, to the extent that the amount thus delivered exceeds the 50 gallons hereinbefore provided.

Sec. 304. That in addition to the tax now imposed or imposed by this Act on distilled spirits there shall be levied, assessed, collected, and paid a tax of 15 cents on each proof gallon and a proportionate tax at a like rate on all fractional parts of such proof gallon on all distilled spirits or wines hereafter rectified, purified, or refined in such manner, and on all mixtures hereafter produced in such maner, that the person so rectifying, purifying, refinining or mixing the same is a rectifier within the meaning of Section 3244, Revised Statutes, as amended, and on all such articles in the possession of the rectifier on the day this Act is passed: *Provided,* That this tax shall not apply to gin produced by the redistillation of a pure spirit over juniper berries and other aromatics.

When the process of rectification is completed and the tax prescribed by this section has been paid, it shall be unlawful for the rectifier or other dealer to reduce in proof or increase in volume such spirits or wine by the addition of water or other substance; nothing herein contained shall, however, prevent a rectifier from using again in the process of rectification spirits already rectified and upon which the tax has theretofore been paid.

The tax imposed by this section shall not attach to cordials or liqueurs on which a tax is imposed and paid under the Act entitled "An Act to increase the revenue, and for other purposes," approved September 8, 1916, nor to the mixing and blending of wines, where such blending is for the sole purpose of perfecting such wines according to commercial standards, nor to blends made exclusively of two or more pure straight whiskies aged in wood for a period not less than four years and without the addition of coloring or flavoring matter or any other substance than pure water and if not reduced below ninety proof: *Provided*, That such blended whiskies shall be exempt from tax under this section only when compounded under the immediate supervision of a revenue officer, in such tanks and under such conditions and supervision as the Commissioner of Internal Revenue, with the approval of the Secretary of Treasury, may prescribe.

All distilled spirits taxable under this section shall be subject to uniform regulations concerning the use thereof in the manufacture, blending, compounding, mixing, marking, branding and sale of whisky and rectified spirits, and no discrimination whatsoever shall be made by reason of a difference in the character of the material from which same may have been produced.

The business of a rectifier of spirits shall be carried on, and the tax on rectified spirits shall be paid, under such rules, regulations and bonds as may be prescribed by the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury.

Any person violating any of the provisions of this section shall be deemed to be guilty of a misdemeanor and, upon conviction, shall be fined not more than $1,000 or imprisoned not more than two years. He shall, in addition, be liable to double the tax evaded together with the tax, to be collected by assessment or on any bond given.

Sec. 305. That hereafter collectors of internal revenue shall not furnish wholesale liquor dealers' stamps in lieu of and in exchange for stamps for rectified spirits unless the package covered by stamp for rectified spirits is to be broken into smaller packages.

The Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, is authorized to discontinue the use of the following stamps whenever in his judgment the interests of the Government will be subserved thereby:

Distillery warehouse, special bonded warehouse, special bonded rewarehouse, general bonded warehouse, general bonded retransfer, transfer brandy, export tobacco, export cigars, export oleomargarine and export fermented liquor stamps.

Sec. 306. That the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, is hereby authorized to require at distilleries, breweries, rectifying houses, and wherever else in his judgment such action may be deemed advisable, the installation of meters, tanks, pipes, or any other apparatus for the purpose of protecting the revenue, and such meters, tanks, and pipes and all necessary labor incident thereto shall be at the expense of the person, corporation, partnership, or association on whose premises the installation is required. Any such person, corporation, partnership, or association refusing or neglecting to install such apparatus when so required by the commissioner shall not be permitted to conduct business on such premises.

Sec. 307. That on and after the passage of this Act there shall be levied and collected on all beer, lager beer, ale, porter, and other similar fermented liquor, containng one-half per centum or more of alcohol, brewed or manufactured and sold, or stored in warehouse, or removed for consumption or sale, within the United States, by whatever name such liquors may be called, in addition to the tax now imposed by law, a tax of $1.50 for every barrel containing not more than 31 gallons, and at a like rate for any other quantity or for the fractional parts of a barrel authorized and defined by law.

Sec. 308. That from and after the passage of this Act taxable fermented liquors may be conveyed without payment of tax from the brewery premises where produced to a contiguous industrial distillery of either class established under the Act of October 3, 1913, to be used as distilling material, and the residue from such distillation, containing less than one-half of one per centum of alcohol by volume, which is to be used in making beverages, may be manipulated by cooling, flavoring, carbonating, settling and filtering on the distillery premises or elsewhere.

The removal of the taxable fermented liquor from the brewery to the distillery and the operation of the distillery and removal of the residue therefrom shall be under the supervision of such officer or officers as the Commissioner of Internal Revenue shall deem proper, and the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, is hereby authorized to make such regulations from time to time as may be necessary to give force and effect to this section and to safeguard the revenue.

Sec. 309. That upon all still wines, including vermuth, and upon all champagne and other sparkling wines, liqueurs, cordials, artificial or imitation wines or compounds sold as wine, produced in or imported into the United States, and hereafter removed from the custom-house, place of manufacture, or from bonded premises for sale or consumption, there shall be levied and collected, in addition to the tax now imposed by law upon such articles, a tax equal to such tax, to be levied, collected, and paid under the provisions of existing law.

Sec. 310. That upon all articles specified in Section 309 upon which the tax now imposed by law has been paid and which are on the day this Act is passed held in excess of 25 gallons in the aggregate of such articles and intended for sale, there shall be levied, collected, and paid a tax equal to the tax imposed by such section.

Sec. 311. That upon all grape brandy or wine spirits withdrawn by a producer of wines from any fruit distillery or special bonded warehouse under subdivision (c) of Section 402 of the Act entitled "An Act to increase the revenue, and for other purposes," approved September 8, 1916, there shall be levied, assessed, collected and paid in addition to the tax therein imposed, a tax equal to double such tax, to be assessed, collected and paid under the provisions of existing law.

Section 312. That upon all sweet wines held for sale by the producer thereof upon the day this Act is passed there shall be levied, assessed, collected and paid an additional tax equivalent to 10 cents per proof gallon upon the grape brandy or wine spirits used in the fortification of such wine, and an additional tax of 20 cents per proof gallon shall be levied, assessed, collected and paid upon all grape brandy or wine spirits withdrawn by a producer of sweet wines for the purpose of fortifying such wines and not so used prior to the passage of this Act.

Sec. 313. That there shall be levied, assessed, collected, and paid—

(a) Upon all prepared sirups or extracts (intended for use in the manufacture or production of beverages, commonly known as soft drinks, by soda fountains, bottling establishments, and other similar places) sold by the manufacturer, producer, or importer thereof, if so sold for not more than $1.30 per gallon, a tax of 5 cents per gallon; if so sold for more than $1.30 and not more than $2 per gallon, a tax of 8 cents per gallon; if so sold for more than $2 and not more than $3 per gallon, a tax of 10 cents per gallon; if so sold for more than $3 and not more than $4 per gallon, a tax of 15 cents per gallon; and if so sold for more than $4 per gallon, a tax of 20 cents per gallon; and

(b) Upon all unfermented grape juice, soft drinks, or artificial mineral waters (not carbonated), and fermented liquors containing less than one-half per centum of alcohol, sold by the manufacturer, producer, or importer thereof, in bottles or other closed containers, and upon all ginger ale, root beer, sarsaparilla, pop and other carbonated waters or beverages, manufactured and sold by the manufacturer, producer or importer of the carbonic acid gas used in carbonating the same, a tax of 1 cent per gallon; and

(c) Upon all natural mineral waters or table waters, sold by the producer, bottler, or importer thereof, in bottles or other closed containers, at over 10 cents per gallon, a tax of 1 cent per gallon.

Sec. 314. That each such manufacturer, producer, bottler, or importer shall make monthly returns under oath to the collector of internal revenue for the district in which is located the principal place of business, containing such information necessary for the assessment of the tax, and at such times and in such manner as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, may by regulation prescribe.

Sec. 315. That upon all carbonic acid gas in drums or other containers (intended for use in the manufacture or production of carbonated water or other drinks) sold by the manufacturer, producer, or importer thereof, there shall be levied, assessed, collected and paid a tax of 5 cents per pound. Such tax shall be paid by the purchaser to the vendor thereof and shall be collected, returned, and paid to the United States by such vendor in the same manner as provided in Section 503.

Title VI.—War Excise Taxes.

Sec. 601. That each manufacturer, producer, or importer of any of the articles enumerated in Section 600 shall make monthly returns under oath in duplicate and pay the taxes imposed on such articles by this title to the collector of internal revenue for the district in which is located the principal place of business. Such returns shall contain such information and be made at such times and in such manner as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, may by regulations prescribe.

Sec. 602. That upon all articles enumerated in subdivisions (a), (b), (e), (f), (g), (h), (i), or (j) of Section 600, which on the day this Act is passed are held and intended for sale by any person, corporation, partnership or association, other than (1) a retailer who is not also a wholesaler, or (2) the manufacturer, producer, or importer thereof, there shall be levied, assessed, collected and paid a tax equivalent to one-half the tax imposed by each such subdivision upon the sale of the articles therein enumerated. This tax shall be paid by the person, corporation, partnership or association so holding such articles.

The taxes imposed by this section shall be assessed, collected and paid in the same manner as provided in Section 1002 in the case of additional taxes upon articles upon which the tax imposed by existing law has been paid.

Nothing in this section shall be construed to impose a tax upon articles sold and delivered prior to May 9, 1917, where the title is reserved in the vendor as security for the payment of the purchase money.

Judge Hand's Decision in the Crisco Case

THIS decision has the effect of throwing open to the food industry the right to make a product similar to Crisco, provided that in so doing the manufacturer does not infringe the process patent of E. C. Kayser.

Some few years ago, owing to the rapidly increasing cost of oleostearin, all manufacturers who dealt therein were anxiously casting about for some less expensive substitute therefor. The practice of producing semi-solid compounds made by mixing soft oils with those of stiffer consistency was in vogue in many lines, both industrial and edible, and was recognized as a part of the existent art. The Kayser patent, under which Crisco is made, concerns itself with the method by which hydrogen is made to combine with oleic acid to form stearic acid, the resultant product possessing the characteristics of the saturated fatty acid series—less liability to turn rancid and stiffer consistency.

The Burchenal patent was an attempt on the part of Procter & Gamble to maintain all the rights of a patentee as to the finished product, irrespective of its method of production.

The importance of the suit is readily appreciated when it is realized that should the Burchenal patent have been upheld, it would have tended to stop all inventive work looking toward the production of a product similar to Crisco but made in different fashion. While the courts are generally loath to recognize "product patents" on the ground of their being against public policy, they are at all times inclined to maintain the integrity of "process patents," the distinction being very vividly brought out in the present case. The decision of Judge Augustus N. Hand of New York follows:

United States District Court

SOUTHERN DISTRICT OF NEW YORK.

Procter & Gamble Company, Complainant, against Berlin Mills Company, Defendant.

Kerr, Page, Cooper & Hayward, Solicitors for Complainant, Alfred N. Allen, Livingston Gifford and Thomas B. Kerr, Counsel.

John C. Pennie, Solicitor for Defendant, Marcus B. May and John C. Pennie, Counsel.

Augustus N. Hand, District Judge.

This suit is for infringement of patent No. 1,135,351, granted to the complainant as assignee of John J. Burchenal on April 13, 1915. The application for the patent was filed November 10, 1910. The specification states that the invention is for a food product consisting of a vegetable oil, preferably cottonseed oil, partially hydrogenized and hardened to a homogeneous white or yellowish semi-solid clearly simulating lard.

Claims 1 and 2 alone are in issue and read as follows:

"1. A homogeneous lard-like food product consisting of an incompletely hydrogenized vegetable oil.

"2. A homogeneous lard-like food product consisting of incompletely hydrogenized cottonseed oil."

The special object of the invention is, according to the specification:

"* * * to provide a new food product for a shortening in cooking in which the liability to become rancid is minimized and in which the components of such vegetable oils which are inferior and detrimental to use as such a food product have been to a large extent converted into a higher and more wholesome form. All such vegetable oils contain glycerids of unsaturated fatty acids and among these notable quantities of fatty glycerids of lower saturation than olein. It is the presence of these glycerids of lower saturation that seriously affects the rancidity of the material. Oxidation is largely the cause of rancidity which oxidation weakens the fat at the point of absorption at the double bonds, and these glycerids of lesser saturation readily absorb oxygen from the air at ordinary temperatures while the more highly saturated glycerids, as olein, only absorb oxygen at elevated temperatures. It is evident, therefore, that oils or fats containing notable quantities of glycerids of linolic acid or of lesser saturation are distinctly inferior as an edible product to those containing a minimum of these glycerids with a larger per cent of olein. On the other hand, while it is important to get rid of the readily oxidizable glycerids of lower saturation, it is also important not to supply too large a per cent of fully saturated glycerids.

"* * * In manufacturing this product cottonseed or other vegetable oil is caused to chemically absorb a limited amount of hydrogen by reacting on the oil with hydrogen in the presence of a catalytic agent and at an elevated temperature. The oil is preferably agitated in a closed vessel in the presence of an atmosphere of compressed hydrogen, a catalyser of finely-divided nickel carried by kieselguhr being maintained in suspension in the oil and its temperature being raised to about 155° C.

"According to the present invention, the amount of hydrogen absorbed is carefully regulated and limited. In practice, the operation is stopped when the oil has been converted into a product which cools to a white or yellowish semi-solid more closely resembling lard than do the commercial mixtures of cottonseed oil and animal oleo-stearin while in many respects the product is superior to the best leaf lard as a shortening. It is not so liable to become rancid and the product can be heated to a considerably higher temperature than lard without smoking or burning. The high temperature to which my product can be raised without smoking or burning makes the product ideal for frying, inasmuch as a crust forms almost instantly on the food fried, which prevents any absorption of the shortening. A lard-like product thus prepared from cottonseed oil has a saponification value of about 195 and an iodin value ranging from about 55 to about 80. The product having an iodin value of 55 has a titer of about 42° and a melting point of about 40° C., that having an iodin value of 80 has a titer of about 35° and a melting point of about 33° C. While but partially hydrogenized, containing from about 1.5% to 2.5% of additional hydrogen more than in the non-hydrogenized material, it shows no free cottonseed oil when subjected to the Halphen test, thereby differing from all commercial lard substitutes containing this oil. It contains from twenty to twenty-five per cent of fully saturated glycerids, from five to ten per cent linolin, and from sixty-five to seventy-five per cent olein; and an average of a number of samples gives twenty-three per cent of saturated fats, seven and five-tenths per cent linolin and sixty-nine and five-tenths per cent olein, while the cottonseed oil before treatment contained seventeen per cent saturated fats, thirty-seven per cent linolin and forty-six per cent olein. It will thus be seen that I have produced an ideal food product which is high in olein low in linolin and lesser saturated fats and with only enough stearin to make the product congeal at ordinary temperatures."

The complainant urges that Burchenal first taught the art that a partially hydrogenated vegetable oil, preferably cottonseed oil, was edible and was a useful lard substitute. It contends that prior to Burchenal's conception it was not known that hydrogenated cottonseed oil was edible and that the only processes then in use aimed at complete saturation and produced a hard non-edible product. Before discussing the prior art, I would say in general that Normann, whose patent will later be referred to, had already disclosed a method of hydrogenating oils, and had set forth in his specification that the process was progressive and involved "no secondary reaction." The method of adding cottonseed oil to beef stearin for use as a lard compound was well known and much used, as it still is. The hydrogenation of cottonseed oil resulted in a reduction of the fluid and substitution of the solid fats. Normann's patent, as well as various experiments of scientists, indicated that the addition of hydrogen to cottonseed oil would result in the reduction or elimination of the fluid and substitution of solid or partially solid fats. No one has shown that the product resulting from such hydrogenation was ever non-edible or insanitary in any respect.

The British patent No. 10,783 (1887), to Joseph Sears, was for a lard substitute composed of refined unbleached cottonseed oil and a fat adapted to give a stiffness to the compound corresponding substantially to that of refined lard. The specification provided that the temperature should be raised sufficiently to melt the fat or stearin, the heated ingredients mixed and then chilled rapidly so as to prevent crystallization and separation. This general process was well known in the art before the date claimed for the invention of Burchenal, and indeed is referred to in the patent in suit. A very large market for such lard-like compounds exists at the present time and has existed many years past.

The British patent No. 1515 of 1903, to Normann, discloses a process for the reduction of glycerins resembling that of the patent to Burchenal. Normann's patent says that:

> "The property of finely divided platinum to exercise a catalytic action with hydrogen * * * is already known. * * * Recently Sabatier and Senderens of Paris have discovered that other finely divided metals will also exercise a catalytic effect on hydrogen, viz.: iron, cobalt, copper, and especially nickel."
>
> "By causing acetylene, ethylene or benzine vapor in mixture with hydrogen gas to pass over one of the said metals (which had just been reduced in a current of hydrogen) the said investigators obtained from the unsaturated hydrocarbons, saturated hydrocarbons, partly with simultaneous condensation."
>
> "I have found that by this catalytic method it is easy to convert unsaturated fatty acids into saturated acids."
>
> "This may be effected by causing fatty acid vapors together with hydrogen to pass over the catalytic metal, which is preferably distributed over a suitable support, such as pumice stone. It is sufficient, however, to expose the fat or the fatty acid in a liquid condition to the action of hydrogen and the catalytic substance."
>
> "For instance, if fine nickel powder obtained by reduction in a hydrogen current is added to chemically pure oleic acid, the latter heated over an oil bath and a strong current of hydrogen is caused to pass through it for a considerable time, the oleic acid may be completely converted into stearic acid."
>
> "The quantity of the nickel thus added and the tempterature are immaterial and will only affect the duration of the process. Apart from the formation of small quantities of nickel soap, which may be easily decomposed by dilute mineral acids, the reaction passes off without any secondary reaction. The same nickel may be used repeatedly. Instead of pure oleic acid, commercial fatty acids may be treated in the same manner. The fatty acid of tallow, which melts between 44 and 48° C., has an iodine number 35.1 and a yellow color will after hydrogenation melt between 56.5 and 59°, while its iodine number is 98 and its color slightly lighter than before, and it will be very hard."
>
> "The same method is applicable not only to free fatty acids, but also to the glycerins occurring in nature, that is to say, the fats and oils. Olive oil will yield a hard tallow-like mass; linseed oil and fish oil will give similar results."
>
> "By the new method all kinds of unsaturated fatty acids and their glycerides may be easily hydrogenized."

The Normann patent clearly discloses that oils may be completely hydrogenized, that the process is progressive and that it involves *"no secondary reaction,"* in other words, that cottonseed oil which starts edible remains so. The experiments and articles of Paul and Roth, which were alluded to at the trial, show that hydrogenization of oils, including cottonseed oil, was understood in the prior art.

Such being the state of the art, Edwin Cuno Kayser wrote Procter & Gamble from England that he had a process of considerable value and would like to talk to them about it; thereafter he came to America about November, 1907, bringing samples of hydrogenized cottonseed oil. He showed these to Burchenal, the superintendent of Procter & Gamble. As a result of his visit, he made an arrangement under a preliminary contract of January, 1908, to experiment upon the hydrogenized cottonseed oil as a substituee for lard. The first project was apparently to use hydrogenated cottonseed oil as a compound to be added to a percentage of beef stearin and cottonseed oil. Burchenal says he had done no work in connection with hydrogenizing cottonseed oil before he saw Kayser. He testified that:

> "Mr. Kayser went out to our factory and made sketches as to the apparatus that would be necessary to carry on this work and the apparatus was ordered at once; a little plant was installed for experimental purposes, and I think it was ready to op-

erate some time in January or February, 1908" (Deposition of Burchenal, page 11).

The defendant succeeded in obtaining contemporaneous memoranda as to some of Kayser's experiments from the records of Procter & Gamble. The first experiment was as follows:

> "Fat Hardening Process by E. C. Kayser.
>
> "First experimental lot was completed January 17th, 1908. Fat treated—Summer Yellow Cottonseed Oil. Used Nickel Sulphate and Kieselguhr as described. Experiment was conducted by Mr. Kayser alone. He claims to have used about 1% Nickel Metal and 2% Kieselguhr.
>
> "M.P. of fat after 3 hrs., 55½° C.
> "M.P of fat after 6½ hrs., 60.3° C.
> "Dr. Bender reports as follows:
> "Melting point of fat, 60.3° C.
> "Hydrocarbons, .33%.
> "Iodine value of fat, 7.14%.
>
> "The fat does not contain free fatty acids. This material is much superior to the samples from J. Crossfield & Sons, which showed an iodine value of 52.26 and a melting point of 39.3° C. (The laboratory sample melted at 49.9° C.). Their samples contained 5.12% free fatty acids and 2% hydrocarbons.
>
> "Mr. Kayser reports as follows: 'The melting point of fatty acid, prepared from first lot hardened cottonseed oil, is 62° C. This is several points higher than I ever got before. Presumably the composition of your oil differs somewhat from that of the oil I handled formerly.' "

Another experiment by Kayser of the date of March 5, 1908, was also obtained from the Procter & Gamble records, in which the following melting points appeared:

5 hrs. at ordinary pressure, 42° C.
1½ hrs. at 60 lb. pressure, 43° C.

Von Phul testified that Kayser told him in 1907 that he was getting up a patent for a food product, and even Burchenal's own testimony shows that Kayser *supposed* that the product he was making was edible. If Kayser at first told him it was not edible he did so when they were negotiating, and he wished to keep his process in the dark until he had arranged his terms. That Kayser's statement that it was not edible was not taken seriously by either party is shown by the following testimony:

> "Q887. But you did not know as a matter of fact whether it would be edible or not? A. I did not. Mr. Kayser stated that it would not be, but that was his method of talking."

Both of these men were proceeding soon after Kayser's arrival in this country to develop hydrogenated cottonseed oil as a food product. Even if the thought first occurred to Burchenal, I cannot see that he did anything to carry it out in practice. Kayser's patent No. 1,004,035, application for which was filed March 20, 1908, disclosed the process which was employed to make the product covered by the patent in suit, and the specification for this Kayser patent contains the statement that "The time of treatment will vary with the progress realized and with the degree of saturation aimed at." It is to be remembered that Burchenal distinctly disclaimed in his testimony that he had anything to do with the invention of the process covered by the Kayser patents, and we thus have a situation where Kayser invented the process and developed the product to the point where it was applicable to use as a food product. He came to America with a sample which, as appears from the written record taken from the files of the complainant, had a melting point of only 39 and developed other samples with melting points of but 42° and 43° in his March 5, 1908, experiments.

Moreover, it is to be remembered that Crossfield had employed Kayser to experiment in hydrogenating oil, that the former had been in close communication with Normann, who had patented only four years before the process I have mentioned, and that Crossfield had so strenuously objected to the use by Procter & Gamble of the processes of Kayser that they were obliged to purchase their rights to them. It is also noteworthy that Kayser refused to testify in this case and that the witnesses as to the work of Kayser in America are officers or employees of the complainant. Under such circumstances the meagerness of the evidence which has been adduced to show that Burchenal had anything to do with the development of the lard-like food product which is the subject of the patent in suit, coupled with his admission that the entire *process* under which it was made was the work of Kayser, is most significant and makes it impossible to find that Burchenal invented anything. The defendant has been embarrassed in its defense by many difficulties and has been obliged to go into the enemy's camp to secure almost all its ammunition. In spite of this, it has established that Kayser at the very beginning had developed not only a process but a product little differing from Crisco. Kayser remained with Procter & Gamble until well into 1910, and did not leave America until about July of that year. While there is some general evidence of what Burchenal and others did, or directed, I can find no real proof that anyone but Kayser did anything of substantial moment. No step was taken by Burchenal that could possibly amount to invention.

Complainant urges that the experiments of Kayser and the patents of Normann and Kayser aimed at complete saturation and that neither realized the importance of a partially hydrogenized product. But the process under which their products were made involved in its progress partial hydrogenation, and Kayser's patent No. 1,004,035 distinctly stated that "The time of treatment will vary with the progress realized and with the degree of saturation aimed at." Kayser, as far as I can see, did everything that was done to develop Crisco, and if his work fell short of this he achieved enough so that the final step was inevitable to one skilled in the art. Kayser's process was the complainant's process and his product involved a progressive reaction fitted for any purpose. The broad discovery as between him and Burchenal certainly belongs to him.

Furthermore, under any fair interpretation of the patent, there is no infringement. The file wrapper indicates that the examiner rejected the claims as originally filed, saying:

> "* * * If the problem of simulating lard from cottonseed oil were presented to an oil chemist, an incomplete hydrogenization of the cottonseed oil would at once suggest itself to him as a solution of the problem. All the claims are accordingly re-

jected on the * * * ground of lack of invention."

Thereafter new claims were rejected upon the Kayser patents for the reason *that his process could be arrested at any time to produce an incompletely hydrogenized product.* Then and for the first time Burchenal filed an amendment setting forth certain percentages of linolin, olein and stearin which his product should contain. It seems quite evident, therefore, that Claims 1 and 2 of his patent would under such circumstances, if valid at all, be limited to substantially the chemical composition described in the amended specification. Indeed, the specification closes with the statement that the inventor has produced a product which "is high in olein, low in linolin and lesser saturated fats and with only enough stearin to make the product congeal at ordinary temperatures."

Under such circumstances it is impossible to treat the melting point as practically the determining factor, and if this is not done the defendant's product Kream Krisp does not infringe. After the examiner had held that an incomplete hydrogenation would suggest itself to any chemist seeking to simulate lard and rejected the claims on Kayser, the patentee, as I have shown, amended by specifying a particular product and dwelling upon the advantages of a small percentage of linolin to avoid rancidity. If, therefore, the inventor contributed anything to the art it was this special chemical composition which his patent discloses. Claims 1 and 2 should consequently be construed in the light of the proceedings of Burchenal before the Patent Office and not given a scope which would monopolize an art in which Normann, Kayser and others had been the real pioneers.

Kream Krisp has a chemical composition extremely remote from that described in the specification of Burchenal. The following are the relative percentages:

	Burchenal.	Kream Krisp.
% Saturated fats	20-25	28
% Olein	65-75	34.3
% Linolin	5-10	37.7

Thus it appears that Kream Krisp instead of being low in linolin is extremely high, and that instead of being high in olein, as specified in the Burchenal patent, it has a percentage of olein which differs but little from that existing in refined cottonseel oil unhydrogenated. In fact, Kream Krisp seems to present many of the objections referred to in Burchenal's specification and to lack the very things upon which the latter based his right to receive a patent. Indeed, the composition is much closer to the lard compound Jewel made out of stearin and cottonseed oil than to Crisco.

The bill should be dismissed with costs because the patent is void for lack of invention, and for the further reason that claims 1 and 2, if properly construed, are not infringed by the defendant.

Dated October 3, 1917. A. N. H.,
D. J.

Modern Methods of Water Purification

By H. E. Barnard
Food Commissioner of Indiana

IN THE endeavor to destroy the bacterial life commonly found in water supplies many electrical processes have been devised. Several early patents aimed at sterilizing water by passing through it a static current of high tension, the idea being to give the organisms a "shock" and kill them, but the process of electrocution was not certain and the expense of administration made the process impracticable. The use of a galvanic current seemed more hopeful, but in practice the strength of the current that can be commercially applied does not kill the lower organisms. Later electrical processes supplement the use of the direct current by chemical action. Electrodes are made of an oxidizable metal such as iron which during the oxidation produces ferric hydrate, a satisfactory coagulant. Machines built with iron plates so arranged as to allow free circulation and contact with the water give a good bacterial reduction and on a small scale work well.

Ozone.

Another electro-chemical method of water purification is the ozone process. Ozone is "active oxygen" which works in a manner comparable to the "available chlorine" before referred to. Pure ozone is very expensive. Commercially it is always applied in the form of ozonized air made by a silent electrical discharge across a space through which the air flows. The process of sterilizing water by the use of ozone is an ideal one. The bacterial life is killed without adding any foreign matter to it. Installations are in successful operation in a number of large cities, among them Paris, Petrograd and Nice. Many other plants are in operation in small cities in France, Germany and Italy. At the St. Maur plant at Paris the water is first filtered through sand and then ozonized. Twenty-five million gallons a day are successfully sterilized by this method. In practice the bacterial efficiency is very high. An installation at Nice successfully removes all pathogenic bacteria and reduces the harmless bacteria to a number less than ten per cubic centimeter, with the exception of B-subtilis.

The change in the physical appearance of water treated by the ozone process is marked. Waters which after passing through the sand filters are of a dull greenish-brown color, become bright and sparkling and with a colorless or faint bluish tint when ozonized. When first treated the water has a distinct odor of ozone which, however, rapidly disappears in bubbles of oxygen until the sterile water when delivered is inodorous and tasteless.

Simple installations suitable for institutions and private homes where electrical power is available do efficient work. While it is not probable that the ozone processes can compete with the direct chemical treatment by hypochlorite or liquid chlorine, there are many conditions under which ozonized waters are better than the chlorinated supplies.

Ultra-Violet Light.

The sterlizing action of sunlight is due to its ultraviolet rays. The powerful germicidal and bacterial effect of these rays has been turned to practical use in the treatment ~~of lupus~~ and other fungoid diseases. Some twenty years ago French investigators made use of the mercury vapor lamp which generates ultra-violet rays, in treating water. The great difficulty in the process was found to lie in the satisfactory treatment of the water stream. At the present time the lamp producing the rays is not allowed to touch the water. In the most satisfactory devices the lamp, encased in a transparent box, is immersed in the water which by the use of baffle plates is made to flow several times in a thin sheet over a surface bathed in the ultra-violet rays.

This method of treating water has had considerable vogue in France where many installations of moderate capacity are in use. One of the great objections to the process is that the water must be thoroughly clarified by filtration before treatment as the rays are almost wholly ineffective in waters even of slight turbidity.

The cost of clarification must be added to the cost of production and application of the ultra-violet rays and this fact makes the process expensive when compared with the cheap and simple chemical treatments.

Copper Sulphate.

The salts of copper have long been known to possess bacterial and special algacidal powers. The most interesting work in purifying waters with this reagent was done by Moore and Kellerman. These investigators found that copper sulphate, when used to the extent of one part in ten thousand parts of water, destroyed algal growths and had a fair bacterial efficiency. The chief value of this chemical in treating waters lies in its ability to kill small plant forms, notably the algae which are frequently found in river and pond waters, and which often grow in quiet reservoirs so rapidly that in their decomposition the entire body of water acquires a strong and unpleasant odor and disagreeable taste.

The only undesirable effect of treating a water supply contaminated with algae which produce odor and taste is that during the first few days after treatment this trouble may be increased because of the decomposition of large numbers of these small plants and the consequent liberation of comparatively large quantities of volatile oils to which the odor and taste are due.

In treating waters with copper sulphate for the purpose of destroying algae the amount to be used depends upon the character of the algal growth. Some forms are killed by very small quantities, in others the dosage must be considerable. Another factor which influences the action is the temperature of the water and its hardness. The customary dosage is one pound to each million gallons at a temperature of sixty degrees Fahrenheit. As the temperature increases the amount of copper sulphate used may be decreased by two and one-half per cent. for each degree of temperature. If the water is colder the amount necessary should be increased in the same proportions. Hard water and water rich in organic matter also call for larger quantities of copper than soft and comparatively organic-free waters.

Before introducing copper sulphate it is necessary to determine accurately the volume of water to be treated. When this is known the most practical way to introduce the solution is to place the copper sulphate in a coarse sack which is then trailed behind a boat which is slowly rowed back and forth over the water.

The Calcium Hypochlorite Treatment as Used for the Protection of Travelers.

Most city water supplies are reasonably safe. They are usually purified by special treatment and their character is constantly watched. But there are city supplies throughout the country which are of unknown quality and are often badly polluted. This fact is usually recognized by travelers who endure thirst rather than drink waters of dubious quality.

The Health Department of the City of Chicago has devised a method for the protection of motor tourists and summer resort dwellers who travel and live where the water supplies are not purified and where they are often seriously polluted. Taking advantage of the well known and thoroughly proven value of chlorine in purifying water, tablets are made of calcium hypochlorite. These tablets contain from twenty to thirty milligrams of available chlorine per tablet. They are put up in glass vials and when kept tightly stoppered in a cool, dark place retain their potency for about four weeks. The directions for the use of the tablets issued by the Health Department are as follows:

"Dissolve one tablet by crushing between the fingers in one quart of water in an ordinary Mason jar, which should be sealed with an air-tight cap. The jar is then shaken and the contents allowed to settle. It should be stored in a cool, dark place. This is the stock solution and under average conditions it will last about one week, after which it should be renewed.

"To prepare water for drinking take one teaspoonful of the clear stock solution, avoiding the sediment, to each eight-ounce glass of drinking water; allow it to stand for five minutes, when it is ready for drinking and will be safe. If it is suspected that the water is heavily polluted, two teaspoonfuls of the stock solution should be used to each eight-ounce glass of water. If it is desired to make up a daily supply, ready for use, it can be done by adding four teaspoons of the stock solution to each quart of water."

Food Facts.

This is a book review. By all the canons of editorial law it should be set in small type and placed on one of the back pages of this periodical. *Food Facts* is a small book; it has but 32 pages, and at that there are not very many words on each page. It is written by Dr. Donald B. Armstrong and printed and distributed by the Metropolitan Life Insurance Company for the use of its policy-holders. It is free for the asking to all who may apply. Dr. Armstrong has the incisive style of the writer of advertising copy, the scientific exactitude of the research worker and the spirit of humanitarianism characteristic of the modern student of sociology. Those who read this little book will know more about food than they did before, and, what is more to the point, those who start the book will finish it at a sitting. There is something particularly appropriate in the publication by a life insurance company of a book calculated to prolong life. There are preferred risks in the realm of fire insurance and there is no reason why the same idea should not be extended to cover life insurance. Possibly the publication of *Food Facts* is a move on the part of the Metropolitan Life Insurance Company to prolong one's "expectation period." However that may be, we heartily commend to our readers the pamphlet in question.

RETAIL PRICES

Average Price per Pound	Average Price per 100 Calories	CANNED FOODS	St. Matthews, S. C.	Lima, Ohio	Augusta, Me.	Burlington, Vt.	Concord, N. H.	Boston, Mass.	New York, N. Y.	Newark, Del.	Trenton, N. J.	Philadelphia, Pa.	Washington, D. C.	Lynchburg, Va.
11.5	12.37	String Beans, No. 2, Std., 1 lb. 3 oz	15	15	16	18	18	17½	17½	15	18	15	14	17½
15.6	3.54	Corn, No. 2, Std., 1 lb. 4 oz	15	18	25	20	20	20	17½	18	18	15	14	16½
13.2	5.28	Peas, No. 2, Std., 1 lb. 4 oz	20	15	16	18	18	17½	17½	20	15	16½	15	16½
9.6	9.60	Tomatoes, No. 3, Std., 2 lb. 1 oz	20	20	20	20	25	22½	18½	20	18	21	18	20
13.2	5.28	Peaches, No. 2½, Std., 1 lb. 13 oz	25	20	25	25	30	26	23	30	23	20	25	22½
13.7	1.96	Pineapples, No. 2½, Std., 1 lb. 14 oz	30	25	25	25	30	25	24	20	25	35	25	30
25.7	3.89	Salmon, No. 1, tall, red Alaska, 1 lb	25	28	25	30	28	29	24	26	25	26	25	22½
35.6	3.87	Sardines, ¼, oil, key, Dom., 3¼ oz	7	12½	12½	12	20	12½	9	10	18	7	7	7
		CEREAL PRODUCTS												
7.1	.44	Wheat Flour, No. 1, Pat., 49 lb. bag	300	330	392	350	370	360	350	380	360	340	350	325
7.4	.47	Rye Flour, Std., 24½ lb. bag	...	...	196	...	245	185	175	...	180	115	...	175
7.7	.47	Graham Flour, 10 lb. bag	...	75	80	90	100	70	80	...	80	...	...	70
19.0	1.14	Shredded Wheat, 12 oz	25	15	14	15	15	13	12	14	12	12	13	15
14.0	.85	Cream of Wheat, 1 lb. 12 oz	20	25	25	25	25	25	23	22	22	28	23	25
8.5	.47	Quaker Oats, 1 lb. 4 oz	15	12	10	12	12	12	10	12	10	10	11	12
7.6	.42	Rolled Oats, Bulk, lb	10	...	8	7	8	7	7	6	7	10	7½	...
11.1	.70	Rice, Fancy Head, lb	10	12½	10	12	12	11	10	10	12	10	12	12
23.5	1.44	Kellogg's Tstd. Corn Flakes, 8 oz	...	12	12	12	12	12	10	12	10	9	11	12
6.9	.43	Corn Meal, lb	5	6½	7	8	8	7	7	5	7	7	6	6
9.4	.58	Hominy Grits, lb	6	...	...	12	14	7	7	...	8	10	6	15
12.1	.75	Pearl Barley, lb.	...	15	16	20	15	8½	9	...	8	8	10	15
9.8	.83	Bread, lb.	10	10	9	10	7	10	10	8	10	7	10	11
17.4	.92	Crackers, Bulk, Soda, lb	10	18	16	20	20	20½	14	18	19	20	18	10
25.8	1.36	Uneeda Biscuit, 4⅝ oz	7	8	7	8	8	7½	7	7	7	6	7	8
12.3	.75	Macaroni, Bulk, lb	10	12½	15	15	12	13	10	16	14	18	12	15
		DRIED FRUITS												
15.5	1.17	Evaporated Apples, lb.	15	...	12½	...	14	...	15	15	...	17	15	15
17.0	1.42	Evaporated Peaches, lb.	20	20	18	30	14	17	15	15	18	17	15	15
14.6	.94	Raisins, Seeded, per pkg., 15 oz	15	15	14	15	15	14	...	13	15	18	15	15
16.4	1.41	Prunes, Medium Sized, lb	12½	15	15	20	16	18	16½	13	18	18	15	20
		SUGAR AND SYRUP												
9.5	.52	Granulated, lb.	10	10½	10	9½	10	9½	9	9½	9	9½	9	10½
8.3	.58	Corn Syrup, 10 lb. pail	75	80	...	...	90	...	100	90	85	90	78	75
23.6	1.59	Comb Honey, lb.	15	25	25	22	30	28	21½	25	24	35	23	25
30.3	1.35	Cocoa, Bulk, lb.	...	30	22	...	35	25	22½	...	25	30	25	40
		FATS												
51.6	1.48	Creamery Butter, Fancy, lb	55	52	55	53½	50	53	50	50	55	55	52	55
31.1	.76	Pure Leaf Lard, lb	25	32	30	23	32	29	34	32	32	30	28	30
33.2	.97	Oleomargarine, Uncolored, lb	...	34	33	32	27½	29½	30½	40	31	38	29	35
59.1	1.48	Italian or Spanish Olive Oil, qt. tin	...	115	140	113	125	120	105	100	105	100	95	125
29.2	.73	Cottonseed Oil, qt. tin	35	70	68	...	60	50	75	...	43	...	60	80
31.4	.78	Corn Oil, qt. tin	...	55	...	...	60	65	75	...	60	...	...	...
25.2	.92	Peanut Butter, lb.	20	23	20	30	25	22	...	...	22	25	20	35
4.7	1.52	Milk, qt.	10	11	11	11	12	13	12	10	12	10	12	12
35.4	1.70	Cheese, American, Cheddar, lb	35	40	32	32	32	...	32	35	32	32	33	35
34.3	5.72	Eggs, fresh gathered, firsts, doz	44	45	55	55	65	68	52	50	66	55	60	50
		VEGETABLES												
2.6	.87	White Potatoes, bu	200	160	150	125	150	170	180	150	140	160	140	200
4.3	.96	Sweet Potatoes, bu	100	250	200	250	300	230	220	150	180	165	200	225
5.3	2.65	Onions, lb.	...	5	5	5	6	8	5	...	5	10	5	5
18.2	1.14	Lima Beans, dry, lb	15	20	...	20	20	20	18	...	18	18	20	20
18.5	1.18	Navy Beans, dry, lb	10	20	17	20	20	20	18	...	18	20	18	15
16.9	.91	Peanuts, lb.	12½	16½	12	...	25	10	...	25	12	16	32	20
3.0	2.50	Cabbage, lb.	3½	3	2½	5	2	3	...	5	3	2½	3	3½
4.2	2.47	Beets, lb.	...	2	4	5	4	5	5	8	4	4	5	...
		MEATS AND FISH												
30.4	4.68	Beef, Round Steak, lb	25	32	38	38	35	39	35	35	38	35	35	25
37.3	7.46	Veal Cutlets, lb.	...	40	40	45	45	50	40	45	40	37½	44	35
29.1	3.34	Leg of Mutton, lb	...	30	32	...	...	28	24	...	32	33	30	35
34.2	4.07	Leg of Lamb, lb	...	38	38	40	35	33½	32½	...	36½	33	35	40
37.6	3.06	Pork Chops, lb.	25	35	40	40	35	41	40	40	37½	37½	40	35
45.5	2.39	Ham, Sliced, med. fat, lb	40	50	40	50	45	43½	45	45	45	45	45	40
48.7	1.71	Bacon, Sliced, lb.	40	50	42	45	40	43½	...	50	46½	44	45	50
37.2	12.83	Chickens, Broilers, lb.	25	38	38	40	36½	36½	32	30	35	38	35	30
22.4	6.22	Salt Cod, lb.	...	25	13	25	21½	21	27½	...	20	35	15	25
21.8	2.18	Salt Mackerel, lb.	...	20	14	25	18	16	22½	20	22½	25	15	20
29.7	6.60	Halibut, lb.	...	23	30	30	35	27	...	...	40	38	25	30
28.9	4.52	Salmon, lb.	...	25	32	40	40	32½	25	...	40	...	25	30
19.6	6.12	Whitefish, lb.	...	20	12	...	...	14	30	...	...	35	23	15

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Harrisburg, Pa.	Pittsburgh, Pa.	Columbus, Ohio	Indianapolis, Ind.	Lexington, Ky.	Nashville, Tenn.	New Orleans, La.	Detroit, Mich.	Chicago, Ill.	Madison, Wis.	St. Paul, Minn.	Fargo, N. D.	Sioux Falls, S. D.	Des Moines, Ia.	Topeka, Kans.	Denver, Colo.	Salt Lake City, Utah	Reno, Nev.	Los Angeles, Cal.	San Francisco, Cal.
18	15	22½	23	20	15	15	15	15	16½	12½	15	17	18	13	15	17½	13	12½	19
15	14	18	20	15	15	15	15	15	15	15	15	18	15	15	15	22½	15	14	20
18	13	16½	16	17½	10	15	15	15	15	15	15	15	15	17	15	20	15	15	20
20	22	20	23	20	15	20	23	22	21	18	18	22½	20	18	25	17	17	17	20
25	19	35	29	22½	18	22½	24	25	27½	25	25	24	30	25	25	30	25	20	30
30	25	25	29	27½	20	25	25	25	27½	30	25	28	25	25	25	20	27	19	25
29	20	25	29	30	16	20	25	30	22½	25	30	31	30	28	30	25	30	19	25
10	8	15	15	9	10	12½	10	...	15	7	8	7½	20	8	15	8	12½	6	21
356	350	375	335	320	360	350	296	320	345	295	310	320	325	298	280	...	350	325	310
...	170	...	196	...	160	145	172	150	196	147	165	220	165	...	150	280	195	175	160
75	85	90	80	72½	90	80	68	75	82½	60	70	82½	75	85	65	75	80	72	80
12	11	15	14	15	12	15	14	15	15	15	15	15	15	14	15	15	14	12	12½
23	24	25	25	25	22	25	25	25	25	25	25	25	25	25	25	27½	25	24	25
12	9	12	12	12	10	11	10	10	12	12½	12½	13	13	10	15	15	17	11	15
8	7	11	...	7	8	8	6	6	6½	8	8	...	7	...	10	7	8	7½	8½
10	11	10	15	12	9	9	10	12	11	10	10	12½	15	12	12½	12½	10	10	10
10	10	12	12½	12	10	11	10	12	13½	12½	12½	13	13	...	12½	12½	12	11	15
...	6	7	7½	6½	5	7	7	7½	6½	7	7	6½	6	7	10	8	8	7	8
15	5	4	8	14	6	7	10	...	10	10	10	9	...	7	15	17½	8	7	8
12	7	9	10	...	10	10	8	...	10	10	15	12	20	10	15	12½	11	10	10
...	9	15	9	10	10	10	7	11	10	9	12	11	10	10	10	10	10	7	11
18	15	18	20	20	15	20	16	18	17	17½	15	18	18	20	20	20	20	13	12½
8	6	10	7½	8	6	8	8	7	8	7½	8	7½	7	7	8	7½	7	7	7½
13½	9	15	...	15	6	10	15	...	11	12	12½	...	...	12	10	17½	12½	9	12
...	14	...	...	...	12	15	15	...	...	15	15	...	...	15	15	17½	15	13½	15
16	12½	18	...	...	12	17½	20	18	13½	15	18	17	18	15	15	17½	12	13½	27½
15	12	14	14	12	10	10	13	15	15	12½	15	15	13	13	10	15	12½	12½	12½
15	12½	20	20	...	15	15	15	18	15	15	18	17½	20	16	15	20	15	16	12½
9	9	10	10	9½	9	9	9½	9½	10	10	9	10⅓	9	10	9	9½	9	8	8
...	110	90	80	72½	75	90	85	...	80	70	85	90	95	89	95	100	97	85	125
...	20	25	24	25	20	25	22	25	23½	22	25	20	25	18	25	20	16	25	25
25	30	25	29	...	28	40	25	25	30	25	29	...	...	20	45	...	50	30	26
50	50	50	48	52½	50	48	48	50	50	49	50	49	48	47	50	55	55	52	55
32	30	30	34	31½	30	29	30	32	31	30	32	32	30	32	35	35	35	28	40
28	30	35	34	37½	25	32½	29	35	30½	30	32	35	31½	30	35	35	...	35	50
100	100	120	113	113	...	95	100	90	105	100	115	125	100	95	85	175	...	120	120
35	43	75	62	65	48	50	...	50	35	60	...	61	...	35	65	80	55	...	60
...	...	...	63	65	...	...	35	60	30	...	...	49	70	...	65	70	...	60	...
25	22	23	25	20	25	20	30	28	27½	22	25	...	...	25	30	25	25	25	25
9	13	11	10	12	10	11	14	13	9	12	12	10	...	9	12	11	10	12	...
35	34	33½	41	35	30	33	35	35	37½	33	35	37½	40	38	45	35	32	40	40
50	50	49	47	45	40	44	60	50	43	45	42	41	43	40	57½	60	60	63	58
113	150	158	196	170	150	175	150	150	145	135	100	125	160	165	150	175	150	210	195
200	175	175	275	213	140	175	385	175	329	200	450	230	200	125	330	450	275	275	440
4	4	6	5	5	5	4	5	5	4½	3	5	5	5	6	4	3	2½	3½	5
20	18	19	19	20	15	17	20	18	18½	12½	20	22	20	20	20	20	20	17½	10
20	18	19	18	20	17	17	16	20	20	18	20	21	20	20	20	20	17	17½	20
15	12	13	...	...	14	8	17	...	15	25	20	19	20	20	20	20	18	15	15
3½	2	4	4	3½	2	2	3	2	3	2	3	5	2	1½	2	2	2½	2	...
3½	5	5	...	5	2	4	...	...	3	3	3	2¼	5	2½	...	2	2	...	5
30	30	28	38	30	25	25	24	30	23½	28	32	27½	30	30	35	27½	22	23	25
38	40	37½	40	35	35	25	40	35	32½	28	30	30	35	30	40	35	30	45	30
35	30	23	...	30	20	28	25	30	25½	...	30	25	35	...	30	28	30	26	20
50	40	27½	45	35	35	35	30	32	32	28	35	32½	40	40	40	35	32	32	30
40	40	37½	44	40	35	40	32	38½	33½	38	35	38	35	38	40	40	35	36	30
42	45	42½	54	42½	40	37½	40	45	45	50	45	42½	45	37½	60	40	42½	60	37
45	45	42½	58	45	40	46	52½	47½	44	50	50	50	45	49	55	50	50	60	48½
40	40	35	48	50	30	38	29	30	29	28	30	32	35	45	40	40	40	45	60
25	20	22½	26½	20	...	15	21½	22	24½	...	15	22½	25	...	25	24	17	30	20
...	20	17½	25	22½	...	25	22	22	22½	10	30	25	25	...	15	30	12	35	31
35	20	22½	30	25	...	30	30	28	23½	25	30	28½	35	...	28	30	30	18	25
35	22	22½	30	22½	...	40	30	28	23½	23	30	25	28	...	30	25	25	23	...
10	25	14	30	22½	...	30	25	28	23½	...	25	22	...	...	20	30	15	...	5

Book Reviews

LIPPINCOTT'S HOME MANUALS: SUCCESSFUL CANNING AND PRESERVING, PRACTICAL HANDBOOK FOR SCHOOLS, CLUBS AND HOME USE. By Ola Powell, U. S. Department of Agriculture Assistant in Home Demonstration Work in States Relations Service. Edited by Benjamin R. Andrews, Ph. D. Teachers' College, Columbia University. J. B. Lippincott Co., Philadelphia, Pa., July, 1917. 371 pp. 4 colored plates. 164 illustrations. $2.

This book emphasizes not only the importance of production and conservation of foods, but also the necessity for the most economical method of preservation. A history of the development of scientific canning from the time of the Napoleonic Wars, when a prize was offered by the French Government for a method of preserving foods for use on ships and in military stores, gives a rather unique interest to the book. Chapters of bacteriology as applied to canning; on the various methods of canning; on the dietary importance of fruits and vegetables; on the Canning Club Organization; on the business end of canning, with specific directions as to standards, marketing, prices and records; and on teaching scientific canning —all splendidly illustrated or explained by diagrams, make up a book on this subject of more than ordinary weight. Especially excellent is the abundant use of illustrations, diagrams and tables, and the scholarly worth of the book is evidenced in the bibliography ending each chapter. The teacher will also find commendable the list of questions reviewing the several chapters. No matter from what angle the reader wishes to approach the subject of canning, this book will be found to be most useful.

BETTER MEALS FOR LESS MONEY. By Mary Green. Henry Holt & Co., New York, 1917. 295 pp. $1.25.

For the housekeepers "whose allowance for food has not kept pace with prices" but who "would continue to serve their households well," this economical recipe book is intended. Substitutes for meat, inexpensive dishes of every sort, make a valuable guide for the cook. Fifteen pages devoted to general suggestions for economy and an appendix containing tables of weights and measures, length of time for cooking, temperatures, caloric values, and normal weights of men and women, are especially interesting. For the average woman who already has a working knowledge of cookery, this book of wartime economies is particularly apt.

FOOD VALUES: PRACTICAL TABLES FOR USE IN PRIVATE PRACTICE AND PUBLIC INSTITUTIONS. By Edwin A. Locke, A. M., M. D., Instructor in Medicine, Harvard Medical School. D. Appleton & Co., New York, 1916. 110 pp. Tables. $1.35.

Written primarily for students in the Harvard Medical School and composed almost entirely of tables of food values with full bibliographical references, this book is an attempt to put the "composition and nutritive value of all common foods in a form so simple that it can be readily applied to the every day regulation of diets." Thus, the tables are made up for prepared foods, not raw materials, and with a good introduction about the importance, use and calculation of food values, form a useful reference book for the medical student or dietitian.

WAR FOOD: PRACTICAL AND ECONOMICAL METHODS OF KEEPING VEGETABLES, FRUITS AND MEATS. By Amy L. Handy. Houghton Mifflin Company. The Riverside Press, Cambridge, Mass., 1917. 76 pp. 75c.

This little book, concisely and lucidly written to help solve the wartime food problem by showing the housewife how to conserve her garden products against the winter and thus release so much more food for the use of our allies, should be in the kitchen of every housekeeper in the country. The book is an attempt to interpret Mr. Hoover's injunctions about food wastage in terms of specific recipes for food preservations, and to make all directions so simple and so practical for any home, no matter how limited its facilities, that no housewife will have an excuse for refusing to try them. It is an admirable addition to the wartime book shelf.

Recent Patents

The following patents of interest to readers of this journal recently were issued from the United States Patent Office. Copies thereof may be obtained from R. E. Burnham, patent and trade-mark attorney, Real Estate Trust Building, Washington, D C., at the rate of 20 cents each. State number of patent and name of inventor when ordering:

1,236,837. Machine for forming hollow containers for confectionery. Oscar F. Granlund, Springfield, Mass.

1,236,998. Apparatus for the manufacture of stuffed alimentary pastes. Vitaliano Tommasini, Milan, Italy.

1,237,299. Loaf loading and spacing device. Elmer A. Clark, Joliet, Ill.

1,237,442. Fruit-marking apparatus. Frank Ahlburg, San Francisco, Cal.

1,237,528. Fruit-pitter. William Knox, San Francisco, Cal.

1,237,623. Process of peeling peaches or other fruits or vegetables. Samuel J. Dunkley, Kalamazoo, Mich., assignor to Dunkley Co., same place.

1,237,708. Rice-popping machine. William B. Schuyler, San Francisco, Cal.

1,237,724. Unfermented malt beverage and process of preparing the same. William A. Stinemann, Los Angeles, Cal.

1,237,874. Drier for alimentary paste. Paul De Martini, Jamaica, N. Y.

1,237,931. Process and apparatus for roasting coffee and other substances. Pierre Malvezin, Sceaux, France.

1,238,225. Cooking or processing apparatus. George A. Walker, Oak Park, Ill.

1,238,238. Nut-cracking machine. Dick B. Williams, New Orleans, La., assignor to Louisiana Nut and Produce Co., same place.

1,238,371. Food product manufactured from potatoes or yams and process for producing same. Joshua H. Williams, Greenville, S. C., assignor to Williams Co., same place.

1,238,372. Food product manufactured from sweet potatoes or yams and the process for producing same. Joshua H. Williams, Greenville, S. C., assignor to Williams Co., same place.

1,238,373. Food product manufactured from sweet potatoes or yams and the process for producing same. Joshua H. Williams, Greenville, S. C., assignor to Williams Co., same place.

1,238,544. Baking-machine. James W. McGowan, Seattle, Wash.

1,238,708. Process of packing ripe olives. Howard P. & Grinnel Burt, Palermo, Cal.

1,239,167. Manufacture of candy. George F. Dickson, Chicago, Ill.

1,239,246. Baker's oven. Charles F. F. Allan, Sydney,

Care of Confectionery

By Walter C. Hughes,

Secretary, National Confectioners' Association.

This is the fifth of a series of six articles which is being published monthly relative to the above subject. The first dealt with the subject in a general way; the second with Chocolates and Chocolate Confections; the third with Hard Boiled Candies; the fourth dealt with Nut Candies; this, the fifth discusses Marshmallow, Fudges and some other special kinds; and the sixth will be a general summary of the entire subject with suggestions relative thereto.

IN THE preceding article relative to the care of nut candies I referred to the perplexing problem of trying to particularize as to the care that should be given any special kind of candy, as *all* kinds need special care.

In articles of this character it is, therefore, necessary to repeat and re-emphasize the same elementary and all-important truths.

If, therefore, what I have to say in this article seems to be merely a reiteration of what I have said in the preceding articles please keep in mind this all-important fact, that the care of any kind of perishable food products is essentially the same. Cleanliness, sanitary conditions, heat, cold and dampness, all have an injurious effect in a greater or less degree, depending on the kind, and intensity of the surrounding conditions.

In addition to the kinds mentioned in the preceding articles there are some other kinds that require special care and attention, which we should consider, such as caramels, fudges, pan-work, French creams and lozenges.

Caramels.

The consistency of caramels is such that they are very sensitive to dampness, heat and cold.

They will attract moisture and if in boxes, the lids should be kept on tightly and if in trays they should be kept in show cases as free as possible from moisture.

Don't keep caramels in one end of the show case, and cigars with a humidifier in the other end.

When the weather is cold, they will frequently become chilled in transit, and be very hard when delivered. If set to one side for a day or two and gradually warmed up they will be nice and soft.

I know that retailers during cold weather frequently return caramels to the manufacturers because they are "hard" and as they think "stale," when as a matter of fact they are only chilled and would soften and be all right after being in the store a day or two.

Excessive heat will cause them to become sticky, and they, therefore, should be kept away from the immediate vicinity of a stove or radiator in the winter time and be kept in a cool, dry place in the summer time.

Caramels are almost as susceptible to climatic conditions as hard boiled candies, and should be given just as careful attention if you want your stock to be in good condition, the kind that makes *come back for more* customers.

Fudges.

Fudges generally speaking require less special care than any other kind. I presume some of our manufacturers will challenge this statement—but what I mean is this—they are not "fool proof," but nearly so.

The chief requirement, is to keep them from drying out; they must retain moisure, to keep them in good condition. Dry air will rapidly extract the moisture from fudges, and they should, therefore, be kept in a place that is moist but not too moist.

Perhaps it were better to say—dry but not too dry. A place which would be very satisfactory for fudges would not do at all for caramels. If they are kept in clean, sanitary surroundings, covers on the boxes, only a few in display trays, to tempt your customers, no other special care is necessary.

Pan-Work.

It is assumed of course that all retailers know what is meant by "pan-work." I remember one time talking to a retailer about "pan-work." He didn't seem to be "hitching on" to what I was saying. I ddidn't blame him for not appearing interested as I lay no claim to being a brilliant conversationalist, but I at least wanted him to know what I was talking about, and tried to explain. "Oh," he said, "you mean jelly beans and sich!" He thought I was talking about show pans, caramel pans, or something of that kind.

There was a time when I thought that "pan-work" was *nickel plated* and would stand all sorts of rough usage. I believed and honestly, too, that the "*finish*" made it water proof, sun proof, heat proof and cold proof—yes, fool proof.

As I gradually "got wise" in the school of experience, I learned that pan-work was no more exempt from ordinary care than any other kinds of confectionery and that in many respects, required even greater care.

I refer now, particularly, to jelly beans, imperials, lemon drops, and similar goods.

Above all, they should be very carefully handled. Playing basket ball with a box of jelly beans is good exercise, and at the same time a sure way to take off the polish. Don't *pitch* or *throw* the boxes—handle them carefully. The polish is a great deal more easily marred than the polish on highly polished furniture.

Pan-work, with jelly, gum or marshmallow centers, when chilled in the winter time, will be hard, but will soften up and be in good condition, after remaining in a warm temperature for a short time.

Pan-work is also sensitive to moisture, and should, therefore, be kept in a dry place. Do not place the boxes near damp, brick or cement walls, or in basements or chill rooms where there is more or less moisture. Don't store you stock of pan-work in the basement, put it up on shelves which are *high and dry.*

French Creams.

Just a few words about French creams. Keep them where they will not dry out—they must not dry out, if they do they will be about as eatable as sugar rocks.

The delicate colors and crystal will be ruined if they are not carefully handled. The pieces will rub against each other mar the crystal and dull the colors. Handle them carefully, and above all, never pitch or throw the boxes.

Lozenges.

Do lozenges need special care? They certainly do. Just because they are made almost entirely of sugar, are more or less hard, do not become sticky, and will keep indefinitely, are no reasons why they should not have special care. They are all that, and yet require extraordinary care in one particular, and that is that they should be kept free from dust and dirt and absolutely clean.

Pure white mint lozenges or the pink wintergreen lozenges for that matter, should be kept in tightly closed glass jars and boxes, the former for display and the show cases, and the latter for the stock.

It has been my observation that most retailers are careless in the care of lozenges.

Due no doubt to the reasons I have just mentioned, in many retail stores I have seen lozenges that were a dull gray or dull pink, on account of dust and careless handling. A white satin ribbon needs no more special care to keep it clean than do mint and wintergreen lozenges.

Reviewing all the various kinds that we have considered, it will be seen that there are certain kinds which should be kept in cool places, certain kinds where there is more or less moisture in the air, certain kinds where it is dry. Arrange your stock with this in mind. Do not *just put in stock,* select the places where the various kinds will keep in the best condition, and always put them there.

A little study and attention to this important subject will repay you many-fold by having your stock in good condition, and the certain knowledge that you have taken one of the most essential steps towards successful retail merchandising—the painstaking, intelligent care of your stock.

Sugar Prices; Packaged and Bulk.

The American Sugar Refining Company of New York City recently secured data from 6,306 retail stores in 25 states, having to do with the relative prices of packaged and bulk sugar. This information shows the retail price charged for two-pound and five-pound boxes of Domino sugar on September 22, and the retail price for the same amount of bulk sugar. The questionnaire was sent to dealers in eastern and southern states only, Illinois being the most western state represented. In New York State 1,498 stores responded, Massachusetts 608, Illinois 511, New Jersey 406, Connecticut and Alabama 358 and 318, respectively.

In Alabama the average price for two pounds of Domino sugar was 22 cents, or 2 cents less than for the same amount of sugar in bulk; in New Hampshire the average price was 20 cents, 1 cent less than the bulk price. The average five-pound price for Domino sugar in Indiana was 50 cents as against 51 cents for five pounds of bulk sugar; in Missouri 48 cents, as against 50; in South Carolina 49 compared with 51; and in Texas the average five-pound price for Domino sugar was 53 cents, while that for bulk sugar was 56 cents. Of the 6,306 stores represented, 3,312 were selling Domino sugar at the same price as, or lower than, bulk sugar. The average prices for the 25 states were: For a carton containing two pounds of Domino sugar 20.6 cents as against 20.24 cents for two pounds of bulk sugar; for a five-pound carton of Domino sugar 50 cents as compared with 49.88 cents for an equal weight of bulk sugar.

Food Reviews

THE SOLDIER'S GOODIE KIT—Put up by the Tebbetts and Garland Store, Chicago, Illinois, in various assortments ranging in price from $1.50 to $10.

With Christmas only something over two months away and parcel post packages taking anywhere from four weeks to two months between here and France, patriotic American families are beginning to think about that Christmas box for their soldiers on the other side, and the stores, forehanded as usual, are already putting on sale just the right sort of gift boxes. The Tebbetts and Garland Store of Chicago, the Park and Tilford of the Middle West, is offering the *Soldier's Goodie Kit* at prices ranging from $1.50 to $10, each box most attractively and securely packed, all ready for sending, and each with its own choice assortment of goodies to carry a message from America to the boy in France. The Tebbetts and Garland Store has made no attempt to give the maximum caloric value for each dollar expended. It relies upon the U. S. Commissary Department to supply our soldiers with hearty and wholesome rations. What this store has tried to do is to respond to the men's craving for something different, attractive and satisfactory to an exile's sweet tooth, and in this most commendable of objects it seems to have succeeded admirably. Some one of these fifty selections offered surely must be "like a breath from home to the man in camp," as the store advertises. The items in a typical $4 assortment are as follows:

TO SUPPORT LIFE.

Item.	Amount. Oz.	Approximate Caloric Value.*
Sardines	7	412
Soda wafers, salted	12	1,500
Jam, peach	28	1,386
Jelly, grape	18	972
Chicken, canned	8	900
Milk, evaporated, unsweetened	2	100
Soda biscuits	2	222
Peanut butter	7	1,167
Chocolate, sweetened	2	285
Figs	16	1,450
Cookies, fruit	7½	833
Candy, hard	22	2,467
		11,694

TO MAKE LIFE WORTH SUPPORTING.

G. Washington coffee	4
Tobacco for cigarettes	12
Cigarette papers	½
Cigarettes	1½
Mints	¾
Chewing gum	1 package

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*Based upon Rose's "Feeding the Family," and Tibbles' "Foods: Their Origin, Composition and Manufacture."

New Chief for Central Division.

Mr. R. E. Doolittle, who has until now been in charge of the eastern division of the Bureau of Chemistry of the U. S. Department of Agriculture, has been transferred to Chicago and will in future control the federal agents of the central division with headquarters in Chicago. Mr. Doolittle should feel at home in his new post as he is a product of the Middle West, having been born in Michigan in 1874. He was graduated from the Michigan Agricultural College in 1896, entering the service of the Michigan Drug and Food Division as an assistant chemist in 1895. Four years later he was made state analyst and served in that capacity until 1904, at which time he went into the U. S. Department of Agriculture, being given charge of the laboratory which the Bureau of Chemistry was at that time operating in New York City under the provisions of an old law governing imported foods then in effect. With the exception of the period from April, 1912, until December, 1912, when he served as acting chief of the Bureau of Chemistry, he had continuous charge of the New York laboratory, until the 8th of January of this year, at which time he was made chief of the eastern division.

There is some talk of the transfer from San Francisco to New York of Mr. B. R. Hart, who is at present in charge of the western division of the Bureau of Chemistry of the United States Department of Agriculture. If Mr. Hart makes this move there is a possibility that Mr. R. W. Hilts, at present in charge of the San Francisco laboratory, will be given control of the western division.

Meat Waste in Marketing "Hanging Tenderloin" and Lambs With the "Pluck."

The "hanging tenderloin," a piece of lean, fibrous meat forming the muscular portion of the diaphragm, weighing from one to one and one-half pounds, and useful for stews, hamburger or sausage, frequently is wasted by being left in the carcass and spoiling, according to the meat market specialists of the U. S. Department of Agriculture. Considerable losses also occur through extravagant handling of "bed trimmings," which should be removed on the killing floor and used while fresh. Kidney fat should be removed at the slaughter house after the carcasses are cool, in order to obtain the full value of the edible fat.

Where lambs are sold on a full carcass basis with the "pluck," or heart, liver, lungs and windpipe left in the carcass and weighing from two to four pounds, not only does the retailer pay an exorbitant price for the "pluck," often as much as 75 cents for a three-pound "pluck," the meat on which brings about 25 cents, but the "plucks" are apt to spoil in the carcass and be a total loss as meat. Dealers would do well to try the method of paying a premium of 1 to 1½ cents per pound for lambs sold on a "pluckout" basis.

Canned Soaked Peas and Beans.

The officials in charge of the enforcement of the Food and Drugs Act are again calling attention to the practice of soaking dried peas and dried lima beans until they have the appearance of the fresh article and then canning them, and in many instances selling them as the canned fresh article. Unless soaked peas and lima beans are plainly labeled as "soaked" or in some other manner so as to show their character, they are regarded as violating the Food and Drugs Act.

It is not claimed that soaked peas and lima beans are unwholesome articles of food, but that they are inferior in quality to the canned fresh vegetables. The dried peas or beans may be purchased by the housewife quite cheaply, and easily home-canned. Moreover, every time the housewife does her own soaking and cooking of these vegetables, she thereby releases a proportional number of greatly needed tin cans for packing perishable foods.

Consumers are urged to read carefully labels of canned peas and lima beans to see whether they are getting a fresh or a soaked dried product.

Tolman with Wilson & Co.

L. M. TOLMAN,
Chief Chemist for Wilson & Company, Chicago.

Announcement was recently made of the resignation from government service of Mr. L. M. Tolman, who is leaving the field of food control to assume the duties of chief chemist for Wilson & Co., packers, of Chicago. Mr. Tolman has for the past few years been chief of the central division of the Bureau of Chemistry of the U. S. Department of Agriculture. Before that time he was for many years in various branches of government service, always in the realm of food chemistry. He has contributed much to that branch of the service, both as an active official and as a writer on scientific subjects. His friends confidently expect that his work with Wilson & Co. will be of the same high order as has been the case in the past.

Staff Correspondence

Washington, D. C.

FOOD ADMINISTRATION ACTIVITIES.

Mr. Hoover has been holding daily conferences during September with representative food men from all parts of the country. Representatives of the cotton seed crushing industry in the Southern States were met on September 9th, and at this meeting, officials of the Food Administration stated that it was entirely probable that the cotton seed crushing and refining industry will be placed under regulations similar to those governing the sugar industry.

On September 10th, the War Emergency Council of the National Association of Master Bakers, composed of twelve of the leading bakers of the country, conferred with the Food Administrator, as a result of which a plan for the control of their industry, providing for its licensing and for the limiting of profits, was presented by the bakers. This plan is now being considered by the Food Administration officials and its details will be announced later.

Conferences were also held with the representatives of the Rice Millers' Association, of the fresh fruit and canned vegetable trade, of the National Canned Foods and Fruit Brokers' Association, of the Eastern Canned Goods Commission Men, and of the fruit packing industry. All of these committees recommended that the various industries they represented be placed under the control of the Food Administrator and licensed under proper regulations.

A plan, which is now under consideration, recommended by a committee representative of all branches of the retail grocery trade, has for its object the licensing of all retail grocery dealers doing a business of $100,000 or more per annum. No decision has been arrived at as yet by the food officials as to the action they will take. They are, however, going to inaugurate a campaign during the months of October and November, in which the co-operation of all wholesale and retail grocers of the country will be asked, to urge upon consumers the buying and storing in their homes of potatoes in sufficient quantities to carry them over the winter months. As a result of a conference with eighty large potato shippers, representing practically every important potato section of the country, plans are under preparation for the licensing of potato shippers, and unanimous approval was given to the official grades for potatoes recently promulgated by the Food Administration and the Department of Agriculture. It was voted to follow the practice of buying and selling potatoes by the hundred pounds, instead of by the sack or barrel, as has been the custom. Each State represented elected one man to serve on a joint committee, which will meet with the Purchasing Committee of the Council of National Defense to discuss ways and means of supplying the potato requirements of the Army and Navy.

Mr. Milo D. Campbell, President of the National Milk Producers' Federation, and other representatives of the milk dealers, were in conference with respect to milk contracts between the milk producers and distributers. The recommendation of the Food Administration was that the semi-annual contracts, which are about to expire, be made henceforth on a monthly basis until the prices to be made for feeding stuffs become more settled. The Food Administration has no authority to regulate the price of milk, but Mr. Campbell felt confident that its recommendation will meet with the approval of dairymen throughout the country.

One of the callers on Mr. Hoover last month was a prominent soap manufacturer, who desired to call attention to some figures regarding the difficulties soap makers are experiencing. The food conservation campaign has been so successful that the garbage oil product of city garbage plants has been reduced forty per cent, with the result that Mr. Soap Maker has been hard put to find the wherewithal to manufacture his product. Mr. Hoover was unable to suggest any substitute for soap, and the only course presented is to save soap.

Mr. Hoover is considerably wrought up over the fact that some advertisements of foodstuffs claim, either directly or by inference, that a certain commodity or its price has received approval or indorsement by him or the Food Administration. To counteract this, he has authorized the statement that in no case has he or the Food Administration taken any such action, but on the contrary he has notified these people that injunctions against such use will be sought unless the practice is immediately discontinued.

SUGAR SITUATION.

An international sugar committee has been appointed, consisting of five members to arrange for the distribution of the available sugar in the world. Two of the members, Sir Joseph White-Todd and John V. Drake, Sr., were appointed by the Allied Governments, two of the members, appointed by the Food Administration, are Americans; Earl D. Babst, President of the American Sugar Refining Company, and William A. Jamison, of Arbuckle Brothers, neither of whom is interested in any way in the production of Cuban sugar, and the fifth member is Mr. George M. Rolph, head of the sugar division of the Food Administration. This committee will arrange for the purchase and distribution of all sugar, whether for the United States or the Allied Countries.

The need for the conservation of sugar, like wheat, is due rather to a lack of transportation facilities than to a threatened shortage, according to the Food Administration. The world's supply for the present year is estimated at 18,659,792 tons, as against an average production of 18,712,997 tons for a pre-war period of five years.

The Food Administration has received information from the British Food Controller that the shortage of sugar in England, which alone has a greater per capita consumption than this country, has necessitated the promulgation of an order fixing the prices of jams and jellies. The dearth of sugar practically prohibited home-made jams and jellies, and supplies of these commodities must come from the factories. To protect the consumer, the Food Controller has, therefore, issued a compulsory schedule of prices, effective September 1st.

RECENT APPOINTMENTS.

Mr. E. Percy Miller, a member of the largest potato handling firm in the United States, and Mr. W. F. Priebe, a powerful factor in the poultry and egg business for thirty years, both of Chicago, have joined the Division of Markets and Marketing of the Food Administration as volunteer assistants.

Mr. Cameron B. Buxton, former general agent of the Santa Fe Railroad at Philadelphia, and since last fall Vice President of H. L. Edwards & Co., cotton merchants of Dallas, Texas, has been appointed Assistant Director of the Section of Transportation of the Food Administration. This section is under the direction of Mr. Edward Chambers, Vice President of the Santa Fe, his services having been donated to the Food Administration by the railroad company, as were the services of Mr. Buxton.

A committee composed of representatives of the War Department and of the Food Administration, to correlate the activities of the two branches of the government in connection with the Army cantonments, will be appointed in a few days. It will take up the problem of waste in the camps, as well as the question of purchasing foodstuffs for this large army. A preliminary meeting was held on September 20th, which was addressed by Mr. Hoover, Quartermaster General Sharpe, and Surgeon General Gorgas, of the Army. Those present included prominent government officials, as well as members of university faculties from all parts of the country.

Prof. Herbert W. Mumford, of the University of Illinois, the live stock expert, is now associated with the Bureau of Markets as consulting specialist in live stock marketing. He will retain his position as Professor of Animal Husbandry in the University and Chief of Animal Husbandry in the Illinois State Experiment Station.

Dr. B. T. Galloway continues to serve as assistant to the Secretary. He acts as the representative of the Department of the Interdepartmental Committee of the Council of National Defense.

GENERAL NEWS.

A delegation of Northwestern wheat growers and dealers, introduced by Senators Chamberlain, Poindexter and Brady, presented to the President the other day their claim that the wheat prices fixed by the government worked a great hardship upon them which called for some measure of relief. Because of the addition of a differential of about 30c a bushel to the Chicago price of $2.20, the President was told, it was almost impossible to sell northwestern wheat.

INTERSTATE COMMERCE DECISIONS.

Decisions in two cases of interest were handed down by the Interstate Commerce Commission last month. One of them (the Central Freight Association Territory Milk and Cream Rates) provided for a readjustment of the rates for the shipment of milk and cream between points in Central Freight Association territory; to Cincinnati from points south thereof; and to Buffalo and Pittsburgh from certain points. The ruling only applied to shipments in cans, but directed proportionate rates where the milk and cream were shipped in bottles in cases or crates. This readjustment will result in a reduction of the freight rates. A separate ruling, bearing on the same point, was given in the case of Golden & Co. vs. Adams Express Company, directing the re-establishment of new rates for the shipment of milk and cream in cans, by express between Washington and points within a radius of 500 miles thereof. This will result in a reduction in some cases and an increase in others, depending upon the distance of the haul. The other case, known as the Buffalo Grain Cases, had to do with conditions arising out of competition between Chicago and Buffalo as grain shipping centers. It was instituted by the Chamber of Commerce of Buffalo against the Buffalo Creek Railroad Company.

EXPORT LICENSE BUREAU NEWS.

The following food products are on the list of articles announced by the Exports Administrative Board for which licenses will be issued only when shipment will contribute to actual war purposes: Wheat, flour, sugar and butter.

Announcement has also been made by the board that on and after September 20 certain shipments containing a large number of different articles, each of small value, may be licensed by the endorsement of the collector of customs at the point of exit. This will be done only when the shipment does not contain an amount of any one commodity exceeding $100 in value. The authority of the collector of customs will be subject to such limitations as may be prescribed by the board from time to time.

Permission has been granted to file telegraphic applications in urgent cases, but applications should ordinarily be filed two weeks in advance of expected day of shipment.

The Exports Board is co-operating with the Canadian Food Controller, at the request of the United States Food Administrator, and anouncement has been made that all exports of wheat, wheat flour, butter and sugar to Canada and New Foundland will require an individual license for the shipment, instead of being allowed to proceed as heretofore under the special license issued through the customs service, which permitted these articles to go to Canada in unlimited quantities. Shipments in transit, however, covered by bill of lading dated on or before September 16, 1917, may enter Canada under the special license mentioned.

Arizona.

George H. Smalley, secretary of the State Council of Defense, has been appointed secretary to the food administrator, T. A. Riordan. Mr. Smalley will divide his time between Mr. Riordan and the Defense Council.

California.

The first test case under the ruling fixing the weight of standard loaves of bread in California at 12 and 24 ounces will be that of a Sacramento bakery. County Sealer C. Jacobson charges that this bakery advertised 5 and 10-cent loaves of standard weight, and that 5-cent loaves weighed about 10 ounces, and the 10-cent loaves about 20 ounces.

Georgia.

Commissioner J. J. Brown has been appointed chairman of the state food conservation administration.

W. C. Dumas succeeds R. E. Stallings as state chemist.

The board of health has issued recently a series of suggestions to milk consumers bearing on the department's weekly reports on milk dealers. The count of

QUALITY
IS NOT THE RESULT OF GUESS WORK

To attain a high standard of quality, guesswork must be eliminated in purchasing ingredients and in the operation of your factory. Your past experience has shown you the folly of gambling on the quality of the ingredients that enter into your finished product.

Victor Phosphate
FOR BAKING POWDER AND SELF RISING FLOUR
Never Varies in Strength or Purity
ALWAYS THE SAME

It has taken a good many years and a great deal of courage to develop VICTOR phosphate to its present standard of quality. Today it is the purest, most economical and efficient phosphate manufactured anywhere.

Victor Chemical Works
Chicago New York St. Louis

THERE IS
CLEANLINESS, HEALTH INSURANCE, ECONOMY AND CONVENIENCE IN

Our **PET**
BRAND
Evaporated Milk

The Standard of the World

Wins and Holds Trade on account of its Superior Quality

PREPARED BY
Helvetia Milk Condensing Co.
HIGHLAND, ILLINOIS
ORIGINATORS OF EVAPORATED MILK

Staff Correspondence

bacteria to be found in fresh, sweet milk should be well under 100,000 per cubic centimeter. The housekeeper is advised to buy only the best milk, and to ask the health department's advice before choosing a dealer; to buy only bottle milk and to put this into the refrigerator as soon as it arrives, and to keep it in the bottle in which it came, the top of which must be always tightly covered; to keep the refrigerator clean by proper drainage and frequent washings, and to wash bottles thoroughly upon emptying them.

Illinois.

Recent conferences have been held in Chicago on the subject of milk prices, a cut in grocery prices, and butter and egg conditions. State's Attorney Hoyne declares that a conspiracy to keep up milk prices in Chicago has been discovered, and that the evidence admits of no doubt. Food Administrator Wheeler was not connected with the raid on the Milk Producers' Association, but he says that the administration is convinced that the milk price is too high and hopes to lower the cost of feed to such an extent that milk prices will drop.

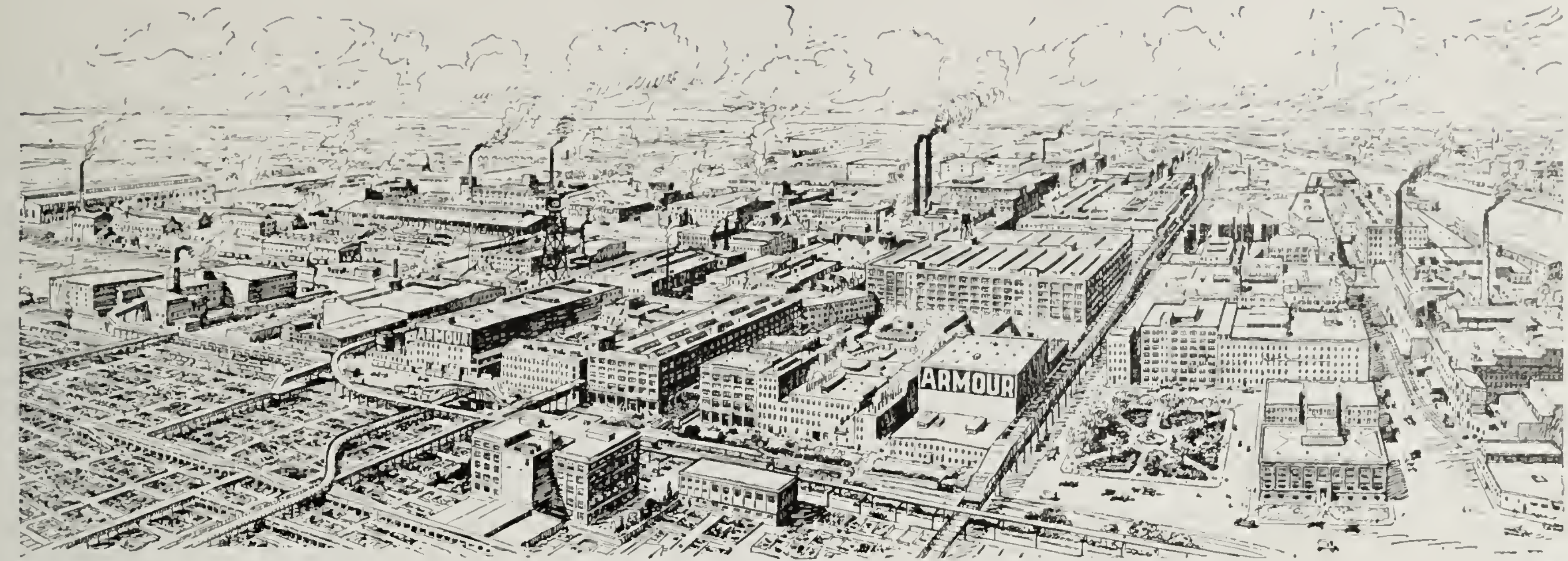
Changes recommended by a committee of Chicago grocers in the attempt to reduce grocery prices include the setting of two prices, one for delivered goods and one for goods carried home by the purchaser; the elimination of all sorts of premiums; the discontinuance of the practice of selling goods, especially sugar, at a low price, provided a certain amount of other goods are purchased at the same time; the limiting of the amount that one person may purchase, and so preventing hoarding. The committee agreed to make an immediate compilation of all staple necessities and to endeavor to fix the margin of profit that may be demanded for distributing charges.

Mr. Wheeler has given out a statement to the effect that farmers in the corn belt can win the war and at the same time pocket at least a billion dollars extra by doubling their hog production. In view of the decrease of live stock in all the warring countries, and more and more in the neutral countries, the extent to which sows are being marketed at high prices in the southern part of the state is alarming. Illinois farmers are advised to save every breeding sow they can get hold of, with view to the future, and the ever increasing demand for live stock of every sort.

The "calf club" idea sponsored by Ex-Commissioner Matthews of Illinois has been taken up by a Chicago land development company, which believes that the proper use of three ordinarily neglected factors of calf raising will produce unusual results, the factors being available large acreages of inexpensive land, the ability to purchase economically great numbers of young female calves, and the use of a special type of clover as a feed for the young calves. The company has established a calf nursery near Chicago, where there are at present more than 100 calves, all in excellent condition. The calves were obtained before the dairymen had had an opportunity to add them to the already too abundant supply of "bob veal."

Indiana.

It was with genuine regret that the friends of Mr. William J. Jones, Jr., of Indiana heard of his death, which occurred recently. Mr. Jones has for several years been in charge of the feed and fertilizer control laws of Indiana and has during the performance of



ARMOUR AND COMPANY'S CHICAGO PLANT

IN uncertain times like the present, the importance of a trade-mark on foods takes on increased significance. For, it definitely fixes the responsibility for their origin and, by putting back of them the reputation of their manufacturers, becomes an assurance to consumers of sustained quality. The Armour Oval Label has behind it the jealously guarded Armour reputation of fifty years' standing—far too much at stake for the future to permit of anything but the very highest grade being sold under it.

Armour's QUALITY PRODUCTS

ARMOUR AND COMPANY

UNION STOCK YARDS, CHICAGO

1648

his duties earned the friendship of a host of manufacturers who appreciated him both because of his evident fairness and because of his intelligent insight into the feedstuffs industry.

Food Administrator Barnard advocates the establishing of wayside markets by farmers. He believes that this will allow farmers to dispose of many otherwise unmarketable products, such as fallen fruits and surplus vegetables, without the costs of packing and transportation, and that the consumer who has an automobile will be able to get foods direct and thus save the expenses of the middleman. He suggests that the farmer put up a sign by the roadside specifying what he has to sell.

Dr. Barnard has announced that oysters may be sold by the pound instead of by dry measure as recently ordered.

The scarcity of milk in Indiana is of growing concern. In attempting to regulate sanitary conditions in dairies, milk inspectors are now requiring, under a new ruling of the board of health, that all milk not absolutely fresh and clean must be pasteurized. Thus there is saved for human consumption much milk that would otherwise be condemned as impure.

Citizens of Indianapolis have been regaling themselves on river fish from their own streams, at 5 cents a pound. The demand has far outrun the supply and plans are under way to extend this practice over the state.

Iowa.

Commissioner W. B. Barney has started a campaign to establish creameries and cheese factories in the southern part of the state.

Iowa farmers are urged to increase the supply of fats by raising more hogs. Hog breeders are answering this plea with a demand for a minimum price on hogs, to be fixed, probably, at a ratio to the cost of corn, 100 pounds live weight as the equivalent of from 10 to 15 bushels of corn.

Kansas.

According to a statement made by Food Administrator Henry J. Waters, the price of flour is wholly disproportionate to the cost of wheat at the present time. If Kansas farmers were getting $2 a bushel for wheat, flour should cost at wholesale no more than $9.50 a barrel. But they are not getting that much for wheat and flour is wholesaling at $12 a barrel, with a correspondingly high retail price. Mr. Waters maintains that somewhere between producer and retailer there is a big profit.

Sanitary conditions are remarkably good in the Fort Riley training camp for medical officers, where 1,100 doctors are now training and learning to protect fighting men from disease. Only four flies are at present reported in the big kitchen from which are fed 500 to 1,000 men three times a day. Garbage cans and horse stables are practically flyless, thanks to the use of crude oil and cleanliness.

Kentucky.

Sanitation ordinances to the number of 12 have lately been passed by the Louisville lower board and referred to the health committee on the upper board, among them being ordinances making members of the police department sanitary inspectors; providing

LINED WITH PARCHMENT!

Sealed with WAXED PAPER!

Vegetable Parchment preserves the moisture and flavor and provides an ideal lining for a food package.

Waxed Paper hermetically seals the container.

We don't know what your food product is—but if you will TELL US, we will have our How Department write you as to what, why and how vegetable parchment and waxed papers may be profitably applied to your proposition. By the way, are you getting the "Parchment Prattler" every month?

KALAMAZOO VEGETABLE PARCHMENT COMPANY

KALAMAZOO, - MICHIGAN

HE SERVES WHO SAVES

Makers of Vegetable Parchment and Waxed Papers

WM. J. MOXLEY'S

"SPECIAL"

OLEOMARGARINE

The Taste Is the Test

Where Quality and Economy Meet

Gives better satisfaction than 75 per cent of butter used. Cost one-third less. Try it and be convinced. Order a package from your dealer.

Churned by

WM. J. MOXLEY, Inc., Chicago

Staff Correspondence

for the removal and disposal of manure and garbage; forbidding the use of common towels, drinking cups, and eating and drinking utensils in public places; preventing the breeding of mosquitoes; protecting sidewalk displays of berries, fruits and vegetables.

Louisiana.

Due to the efforts of Food Administrator Parker, a carload of rice has been sold to the Wisconsin State Council of Defense, through the efforts of Magnus Swenson, chairman of that body, to secure a substitute for wheat. The rice was sold in the market established for housewives at Madison. The Southern Pacific Railroad contributed books and recipes and the car was covered with posters telling the story of this effort for patriotic interstate coöperation.

Mr. Parker has taken up the matter of regulation of public ginners, so that cottonseed producers will receive the largest share of the returns, and expects to regulate the cottonseed mills so as to protect the millers as well as the farmers and consumers.

A unique situation has presented itself in New Orleans with regard to the weight of a loaf of bread through the recent discovery of an old ordinance in that city which sets the size of a loaf whenever flour reaches a price of $11 a barrel. With each additional dollar advance the law permits the reduction of weight by one ounce. The recent prominence to the weight question is held responsible for the resurrection of this ancient act.

The ordinance provides that whenever flour is selling at $11 a barrel the bakers are required to put 20 ounces into a loaf of bread to sell for 10 cents while 10 ounces must be given for 5 cents. With flour at $12, 19 ounces must be provided for 10 cents and nine ounces for a nickel. When Commissioner Stone was asked concerning this law and whether he would enforce its provisions be stated that he would look into the measure. It has been on the statute books many years but has never been enforced, nor any attention paid to it, probably because flour has never reached the price specified in the act.

Massachusetts.

The constitutional convention has passed to a third reading, the food control bill amendment providing that provision may be made by law authorizing the commonwealth to take by purchase or otherwise foodstuffs, feeds, fuel, ice and other necessities and sell these to the people or to municipalities. With the approval of the council the governor may exercise this power in case a public exigency exists until it is otherwise provided by law.

In response to a telegram from Mr. Hoover asking the Bay State to lead the way in speeding up salt water fish production, Governor McCall conferred with Food Administrator Endicott and issued requests to local authorities to take the restrictions from every kind of fishing for herring as food or bait. The object is to relieve the food shortage for the duration of the war. Mr. Endicott urges that another meatless day be added to that already observed, believing that Massachusetts is so well educated in the use of fish that this will not be a hardship.

In a forthcoming report by Thure Hanson, state commissioner of weights and measures, the selling of eggs, oysters and ice cream by weight will be recom-

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mended. Differences in the size of eggs makes their sale by numerical count illogical; oysters sold by dry measure give to the customer a 14 per cent advantage, and the dealer gets the same advantage when they are sold by liquid measure; the sale of ice cream by weight will protect the customer from wastage due to melting.

Michigan.

George W. Prescott of Tawas City, state food administrator, has stated that he means to try persuasion before resorting to coercion. The first step towards effective control of the food situation will be the licensing of all businesses that are concerned with foods, and the revocation without hearing or appeal of any licenses that are abused. Reports of what foods are on hand and what have been sold, as well as reports of profits made, will be required monthly.

The State Dairy and Food Department has begun to compile retail prices on foods and the Federal Trade Commission has sent an investigator into the state to ascertain the prices of potatoes and beans from the producer to the consumer, and set prices for army and navy orders.

An inspector from the State Dairy and Food Department has been investigating the milk situation in Kalamazoo and will recommend a retail price to the city council. Kalamazoo has been paying 12 cents a quart and 7 cents a pint.

An investigation of bakeshop sanitary conditions has been carried on recently in the upper peninsula district.

Minnesota.

A. D. Wilson, Federal food administrator, announces that there is ahead a serious shortage of seed corn, and that farmers should do everything possible to get a further supply. As an aid to this, the food administration will modify the restrictions to 30 days for the storage of wheat and rye for seeding, and permit storage until the next sowing season. Grain elevators will be allowed to sell seed wheat at only 15 per cent over the cost, and must report the amount and kind of wheat with its ownership every week to the food administration grain corporation.

Mr. Wilson says that the remedy of the milk situation is up to the public, and that the trouble is chiefly due to the present methods of distribution, which could be easily remedied by consumers paying cash and not insisting on such prompt delivery. He believes that many other foods are in the same case.

County Commissioner R. B. Boyd of Cass County has suggested that the farmers of that county and the Red River Valley offer their straw free to farmers in the western part of the state, where a stock feed famine threatens. Cass county and the Red River Valley have not the stock to feed the straw to and rather than leave it to rot, the farmers of this section burn it.

Winona has been found to have numerous defective scales and measures. The last legislature failed to consider the importance of the department of weights and measures and consequently too few inspectors have been provided to cover all the territory properly.

R. W. Smith of St. Paul, for four years assistant state commissioner of weights and measures, has been appointed commissioner of weights and measures for Wisconsin, stationed at Madison.

A 750-Calory Breakfast

(A Calory is the Unit of Food Value by Which Nutriment is Measured)

A Dish of Stewed Prunes—
Two Slices Buttered Toast—
Coffee with Sugar and Cream—
Quaker Oats with Milk or Cream.

In Nutrition that Equals—

1 Pound of Eggs (7 Eggs), or
1 Pound Broiled Chicken, or
2 Pounds Potatoes, or
4/5 Pound Round Steak.

¼ Average Cost

Quaker Oats supplies nutrition at one-fourth the cost of the average mixed diet.

It supplies all the elements needed, in a perfectly balanced form. As an energy food it stands first among grain foods. It is the ideal food for growth. And no other grain has been endowed with such richness and such flavor.

When you serve Quaker Oats—in porridge, bread, muffins, pancakes or cookies—you are minimizing food cost. You are conserving wheat. You are supplying the utmost in a food.

Quaker Oats

Flaked from Queen Grains Only

Get Quaker Oats, because this grade embodies just the big, rich, flavory oats. All puny and insipid grains are omitted from this brand.

We get but ten pounds of Quaker Oats from a bushel. But the result is doubly-delicious flakes. And they cost you no extra price.

12c and 30c per package in United States and Canada, except in Far West and South where high freights may prohibit

Recipe for Quaker Sweetbits
A Cookie Confection

1 cup Sugar, 1 tablespoon Butter, 2 Eggs, 2½ cups Quaker Oats, 2 teaspoons Baking Powder, 1 teaspoon Vanilla.

Cream butter and sugar. Add yolks of eggs. Add Quaker Oats, to which baking powder has been added, and add vanilla.

Beat whites of eggs stiff and add last. Drop on buttered tins with teaspoon, but very few on each tin, as they spread. Bake in slow oven. Makes about 65 cookies.

(1701)

Nucoa Nut Margarine

MADE OF NUTS AND MILK
FREE FROM ANIMAL FATS

THIS product is taxed and regulated the same as animal oleomargarine. We oppose the former and positively favor the latter. We want this product sold on its merits for just exactly what it is. We refuse to sell moonshiners. This product is sold only in one, two and five pound cartons. Our business has grown rapidly on new, progressive lines.

The Nucoa Butter Company
CHURNERS
Sales Department, 10 Bridge Street, New York

TIN and FIBRE CONTAINERS

FOR

Foods, Drugs, Oils

Infinite Variety
Large Capacities
Prompt Deliveries

American Can Company
Chicago New York San Francisco
WITH OFFICES IN ALL LARGE CITIES

Staff Correspondence

Mississippi.

Dr. K. U. Jones of the U. S. Bureau of Animal Industry has been sent to Hattiesburg as Federal meat inspector.

Charges of injustice have been made by Meridian in regard to the condemnation of its water supply by the U. S. Public Health Service. The Public Health Service ruled that bacteriological analyses must be submitted by all common carriers, and that these would be made free by the state health department whenever desired. Meridian continued to send its samples of water to Troy, N. Y., and when Troy water was declared contaminated, the Health Service refused to accept this analysis. Steps have been taken by Meridian to correct its insanitary conditions.

Missouri.

The U. S. Food Administration Grain Corporation has opened offices on the floor of the Merchants' Exchange in St. Louis, where all grain coming into the market is bought by the Government and distributed to millers or grain elevators. Under Edward M. Flesh, second vice-president, the work is done with such dispatch that cars are unloaded the same day that they reach the city, thus releasing them for further service and helping to solve the transportation wartime problem. Mr. Flesh makes a practice of saving the 10-pound samples submitted from each carload and selling these to millers. Mr. Flesh says that this system of control is working out admirably.

A new St. Louis ordinance requires the sale of ice, coal, potatoes, fruits and many other articles by the weight instead of the measure. This will mean a radical change in the measure given, as some coal retailers have been selling 25 pounds to the bushel instead of 80, and the ordinery peck measure used by grocers measures 2 or 3 pounds short unless heaped up.

Between 50 and 60 tons of cabbages were recently condemned as unfit for food in freight cars in St. Louis by an inspector for the State Food and Drug Department. Half a carload of beans containing in their natural state dangerous quantities of prussic acid have been seized by the Government food inspector at Kansas City. Shipments of these beans come from Kipling's "Rangoon," from Moon, India,. and from Java, Burma, and the East Indies, where the natives cook them in such a way that the poison is rendered harmless. The British government undertook to supervise their use and thus they have been shipped here through commission firms which did not know their harmful qualities.

Montana.

Two brands of butter on the Helena market are claimed to be short weight by Mr. Charles M. Settles, and action is to be instituted against the manufacturers in the District Court. The "Shady Brook," manufactured by the Park County Creamery Company at Livingston, and the "Blanchard" from the Hennington Produce Company of Butte are the brands in question. The butter is weighed at the creameries before being shipped, and any shortage is therefore traced to the producers and not the retailers.

Nebraska.

Food Administrator Wattles has resigned the position of fuel administrator, stating that he agreed to add this to his other duties only in case another man

LEFFLER SPECIAL MACHINERY

Paper Can Machinery
Automatic Tin Can Machinery
Sanitary Can Machinery
Metal Package Machinery
Soldering Machinery

CATALOGUES ON REQUEST

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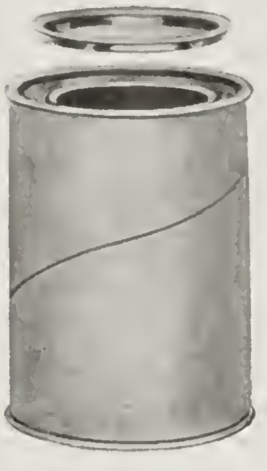
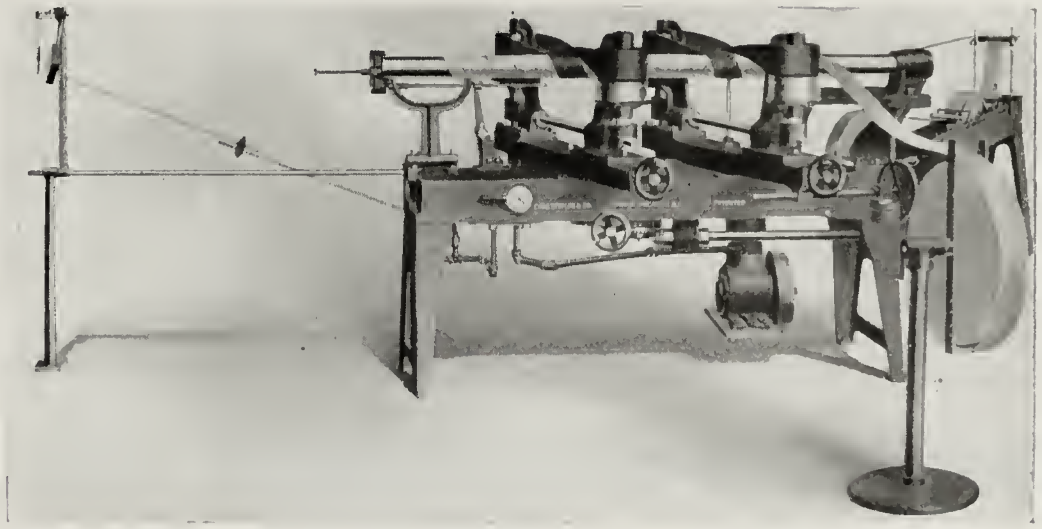
Clymer Street Kent Avenue
BROOKLYN, N. Y.





were associated with him who would take entire charge of the extra work. A. L. Mohler, former president of the Union Pacific Railroad, had tentatively accepted the position but has now declined it.

Mr. Wattles has named Edward L. Burke as chairman of the live stock committee for the state. Live stock commission men in this state have been asked to suspend the recent increase in their commissions. Mr. Wattles believes that this increase would result in decreasing the size of herds, and that such an outcome is to be most vigorously guarded against. The commission men claim that their profits are not nearly as great as are those of grain commission men, but Mr. Wattles states that if all commission men charged as high as do the live stock men the total increase for the country would amount to several million dollars yearly.

Farmers are now releasing their wheat under the price-fixing plan of the Government and mills are running full time. In many cases millers are being supplied directly from their local territory, thus relieving the situation in milling centers like Omaha.

Herbert L. Cushing of Valley County, has been named to fill the position of chief clerk in the office of the Food, Drug and Oil Commission in the place of T. V. Thomas, who has resigned to accept a position with a New York commercial agency.

New Mexico.

The practicability of the home evaporator has been demonstrated in New Mexico. Due to the fruit saving campaign in San Juan County, 50,000 pounds of peaches will be saved which would otherwise have rotted on the ground. The total crop is estimated at 200 carloads and the fruit was never bigger nor finer. Five hundred cars of apples are expected to be shipped.

New York.

Eighty thousand barrels of flour, awaiting export to Norway, were taken over by the Government to supply the recent shortage in New York City. The New York Food Aid Committee has been spreading the gospel of war bread by means of its "war bread wagon" and white-gowned and capped demonstrators, which move about the city and demonstrate on street corners.

North Dakota.

Dr. E. F. Ladd, food and drug commissioner, has recently been the recipient of added honors in being appointed as one of the committee of 12 to fix the price of grain and also as State Federal Food Administrator for North Dakota.

Mr. R. O. Baird, recently connected with the State Food and Drug Commissioner's office as inspector, has been appointed as Deputy Food Commissioner Mr. Robert E. Stallings, formerly state analyst for Georgia and now deceased, was originally appointed to this position.

An analysis of near beers or temperance beers made at the request of the state attorney general's office disclosed the fact that practically all of the beverages of that type on the market in North Dakota contained but a very small amount of alcohol. Many of the samples analyzed contained no alcohol whatever.

Carnation Milk

Is Rich Milk

Carnation Milk is always rich, clean, sweet and pure. It is cows' milk evaporated to the consistency of cream, sealed air-tight in cans and sterilized. It has all the original content of butter fat and solids. Only water is taken out. Nothing added.

Use Carnation Milk in your cooking and baking. Give it to the children to drink. Use it undiluted in your coffee. It is the only milk supply your home needs.

Free Recipe Book

"The Story of Carnation Milk," our free, illustrated recipe book, contains over 100 recipes for plain and fancy dishes. Sent free to *you* upon request. Carnation Milk Products Company, 1065 Stuart Building, Seattle, Wash.

Remember—Your grocer has it!

"From Contented Cows"

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MAJESTIC
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The Wilson Label Protects Your Table

THERE is a "home influence" in this big pure food institution, and the W-shaped label bearing the "big red W" trademark is its symbol. We insist that everything receiving the Wilson label shall be selected, prepared and handled with the *respect* due that which you are asked to buy and eat—we are as *particular* as your mother is when she prepares the favorite dish of the family.

"This mark WILSON & CO. your guarantee"

Chicago, New York, Oklahoma City, Kansas City, Los Angeles
The U. S. Government certifies to the purity and wholesomeness of Wilson & Co.'s meat food products. Look for the Government Inspection Mark

Staff Correspondence

Of the food and beverage samples reported in the July Bulletin, 31 were passed, 10 were declared not standard, 11 were misbranded and 8 were illegal. The illegal samples consisted chiefly of ice creams.

During the past six months the state has been flooded with a poisonous variety of lima bean. This bean is known as the Burma, Java, Rangoon, Kratok, etc., and contains a poisonous principle known as phaseolunatin, a glucoside which yields variable amounts of hydrocyanic acid. No fatalities have been reported and owing to the activity of the Food Commissioner the product has disappeared from the market.

Beginning with July 1 the Food Commissioner automatically took office as Chief Grain Inspector and Chief Oil Inspector. This is in accordance with laws enacted by the last legislature. Mr. T. A. McGovern, formerly of the Equity Grain Exchange of St. Paul, Minn., has been appointed Chief Deputy Grain Inspector under Dr. Ladd and at present is actively engaged in the duties of this office.

The soda fountain law also passed by the last legislature took effect the first of July. This is a sanitation measure and carries with it a yearly license of $10. The Hotel Inspection law was amended so as to place its administration in the hands of the Food Commissioner.

Ray Bolsinger of the Agricultural Department has been named as inspector for the department.

Ohio.

Mr. C. E. George of Delta, state dairy inspector, has been granted indefinite leave of absence in order that he may take up his military duties. Mr. Joseph Slaughter of Coshocton is to take his place.

Chief Thomas C. Gault of the Dairy and Food Division reports that the manager of the New Holland Canning Factory, Mr. George Crites, pleaded guilty to a charge of violating the sanitary rulings of the State Department of Agriculture.

During the first week of October the sixth Annual Pure Food Show under the auspices of the *Ohio State Journal* and the Ohio Retail Grocers' Association, has served as a splendid argument for food conservation. A series of lectures on food economy and the preservation of foods, given by Mrs. Anna MacGregor P. Robinson, of the *Ohio State Journal* staff, was an interesting feature of the Food Show.

B. W. Hawley has succeeded Frank Huffman as deputy sealer of weights and measures at Springfield. L. D. Hale of Findlay has resigned as sealer of weights and measures of that city.

Pennsylvania.

George H. Earle, Jr., president of the Pennsylvania Sugar Company, has been appointed by Mr. Hoover controller of the distribution and price of sugar to the people of the United States and its Allies. Mr. Earle has pledged himself to see that the wholesale price of sugar in this country will not be above 7½ cents a pound.

The state has begun a campaign against sausage containing water and flour instead of the full amount of meat, against canning compounds containing boric acid, egg substitutes and certain patent foods.

The Superior Court of the state has handed down a decision declaring the state cold storage law consti-

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They are made by the Diamond State Fibre Company, which is among the largest manufacturers of specialized papers and boards in America, with unrivaled manufacturing and shipping facilities.

The complete line includes:

GLASSINE, colored, embossed, bleached, semi-bleached and unbleached
PARCHMOID
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Glassine is a new product on the market. It is transparent, resists grease, oil and air and is free from corrosive compounds. The baker, the confectioner, florist, fruit packer, manufacturer of coffee, tea, cocoa, soap, tobacco and electrical apparatus will find it an absolute necessity.

Send your order (large or small) to your jobber or dealer. He will give it prompt and careful attention.

DIAMOND STATE FIBRE COMPANY, Bridgeport, Pennsylvania (near Philadelphia)

tutional and reasonable, and refusing an injunction to restrain Dairy and Food Commissioner James Foust from condemning as not salable for food butter stored by Edward S. Nolan for more than the nine months' limit allowed by law. This is a reversal of the decision of the lower court granting the injunction. It seems likely that the case may be again appealed.

The act of 1897 providing for the regulation of the manufacture and sale of distilled and fermented vinegars and prescribing their standard to prevent adulteration has been amended under date of July 11, 1917, to provide that apple or cider vinegar may be modified by the addition of water to not less than 4 per cent of acetic acid, providing the container is plainly marked with the actual contents.

Texas.

E. A. Peden of Houston has accepted the position of food administrator. Mr. Peden is a former president of the Houston Chamber of Commerce, and the present president of the Peden Iron & Steel Company, as well as a board member of several important banks and other organizations.

Utah.

The case of eight creamery corporations and eleven individuals, whose indictment last February by the Federal grand jury on a charge of conspiracy and unlawful combination in restraint of interstate commerce in violation of the Sherman anti-trust law, was mentioned in these columns, has been continued by agreement in the U. S. District Court and it will not come up for trial before the February, 1918, term.

Vermont.

A sanitary law has recently been passed similar to one suggested by a committee from certain manufacturing houses in the state. A net weight law similar to the Federal law has been passed, with a special law regarding the standard of cream. The latest Food Inspection Decisions on condensed milk and gluten flour have been adopted into the standards, according to the report of Dr. Stone of the State Board of Health.

Virginia.

A national peanut-growing demonstration will be held by the Chamber of Commerce of Suffolk the first three days of November. Peanut growers and manufacturers of farm accessories for the peanut industry are invited to attend. Suffolk is said to be the greatest peanut market in the world, and this year's crop is expected to be 45,000,000 bushels, or over $100,000,000 worth.

Commissioner Purcell has been made a member of the State Agricultural Council of Safety. Mr. Purcell reports that Instructor Rowe has resigned and that the department is looking for a new field instructor.

The department has suggested the use of chloride lime for the sterilization of fountain glasses where heat is not practicable.

The "Lasses" cases of the Corn Products Refining Company versus the dairy and food commissioner will come up this month in the U. S. District Court for the Eastern District of the state.

Rumford
THE WHOLESOME
BAKING POWDER

Worthy of the highest commendation as a healthful, efficient and economical leavening agent.

The acid ingredient in Rumford is the genuine Prof, Horsford's phosphate in its improved form. It restores phosphatic elements equivalent to those which fine wheat flour loses in the milling.

A Perfect Baking Powder.

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Packer and Manufacturer
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BRAND

Canned Foods,
Jellies, Preserves,
Plum Pudding,
Sauces, Table Delicacies,

and

PRIDE OF THE FARM
Tomato Catsup

Bridgeton, N. J.
and 331 Spring St., New York

Staff Correspondence

Wisconsin.

On October 1, John L. Meyer, assistant health commissioner of the city of Milwaukee, will give up that connection to become assistant sales manager of the National Oats Company, St. Louis, in charge of the specialty department. Mr. Meyer formerly conducted the Meyer News Service Company, Milwaukee, and before that was associated with the Kellogg Toasted Corn Flakes Company.

Report of Cold Storage Holdings September 1, 1917.

American Cheese.

Reports from 373 cold storages show that their rooms contain 76,098,428 pounds of American cheese, while on August 1, 362 storages reported 62,417,293 pounds.

Creamery Butter.

Reports from 335 cold storages show that their rooms contain 99,225,394 pounds of creamery butter, while on August 1, 339 storages reported 86,482,667 pounds.

Packing Stock Butter.

Reports from 82 cold storages show that their rooms contain 2,496,054 pounds of packing stock butter.

Eggs.

Reports from 400 cold storages show that their rooms contain 5,981,942 cases of eggs, while on August 1, 396 storages reported 6,595,850 cases.

Frozen Eggs.

Reports from 148 cold storages show that their rooms contain 17,008,575 pounds of frozen eggs, while on August 1, 127 storages reported 15,183,102 pounds.

Frozen Beef.

The total stocks of frozen beef reported by 263 storages on September 1 amounted to 116,654,385 pounds, while the total stocks reported by 273 storages on August 1 amounted to 112,887,328 pounds.

Cured Beef.

The total stocks of cured beef reported by 293 storages on September 1 amounted to 31,927,327 pounds, while the total stocks reported by 290 storages on August 1 amounted to 32,133,702 pounds.

Lamb and Mutton.

The total stocks of lamb and mutton reported by 149 storages on September 1 amounted to 2,930,431 pounds, while the total stocks reported by 147 storages on August 1 amounted to 3,631,935 pounds.

Frozen Pork.

The total stocks of frozen pork reported by 259 storages on September 1 amounted to 75,553,522 pounds, while the total stocks reported by 264 storages on August 1 amounted to 94.119,901 pounds.

Dry Salt Pork.

The total stocks of dry salt pork reported by 389 storages on September 1 amounted to 197,815,747 pounds, while the total stocks reported by 396 storages on August 1 amounted to 228,852,496 pounds.

Sweet Pickled Pork.

The total stocks of sweet pickled pork reported by 481 storages on September 1 amounted to 318,217,830 pounds, while the total stocks reported by 498 storages on August 1 amounted to 399,435,245 pounds.

Lard.

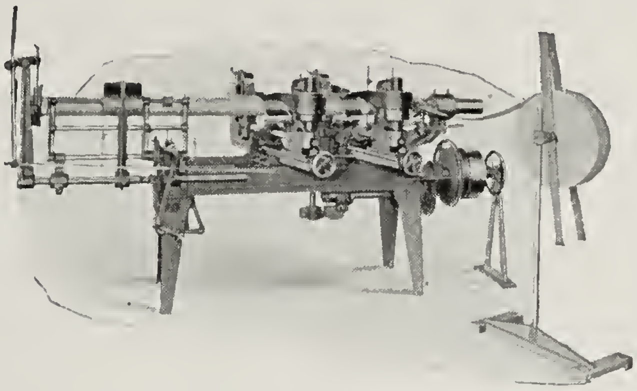
The total stocks of lard reported by 482 storages on September 1 amounted to 97,387,116 pounds, while the total stocks reported by 500 storages on August 1 amounted to 111,943,363 pounds.

Frozen Poultry.

The total stocks of frozen poultry reported by 220 storages on September 1 amounted to 51,830,157 pounds, while the total stocks reported on August 1 amounted to 48,588,865 pounds.

The nations that can feed their soldiers one day longest are the nations that will win.

ROUND PAPER CAN MACHINERY



SAMUEL M. LANGSTON COMPANY
CAMDEN, N. J., U. S. A.
CANADIAN FAIRBANKS-MORSE CO., Agents for Canada

Hohmeyer Secretary of Corn Association.

Appointment was recently made on a *pro tempore* basis of Mr. L. Hohmeyer as secretary of the American Manufacturers' Association of Products from Corn. Mr. Hohmeyer has until recently been manager of the Chicago branch of the Corn Products Refining Company, having been in the corn products industry for some 30 years. He succeeds to the position made vacant by the untimely death of Mr. H. W. Green.

Burwell S. Cutler Made Chief of Foreign Commerce Bureau.

The appointment of Burwell S. Cutler, of Buffalo, as chief of the Bureau of Foreign and Domestic Commerce, Department of Commerce, has been confirmed by the Senate. Mr. Cutler, who is well known in manufacturing circles in western New York, having been identified in an official capacity with numerous business houses and civic organizations throughout New York state, came into the bureau six months ago at a nominal salary to assist in putting the organization on a thoroughly business basis. He was made first assistant chief, but since the resignation of Dr. E. E. Pratt, has been acting chief.

Containers Standardized.

Under the authority of the Federal law known as the Standard Container Act, the Secretary of Agriculture has issued the regulations fixing the tolerances which will govern in the administration of that act. The act goes into effect on November 1, 1917.

It prescribes three standard sizes for "Climax" baskets for grapes and other fruits and vegetables—2 quarts, 4 quarts and 12 quarts—and fixes the dimensions for each; it establishes the dry half pint, dry pint, dry quart and multiples of the dry quart as standards for containers for small fruits, berries and vegetables, and fixes their capacity in cubic inches. On and after November 1, 1917, it is unlawful to manufacture or sell for shipment or to ship in interstate commerce, either empty or filled, baskets or containers that do not conform to the requirements set forth in the law. Containers which are not up to the standard cannot be used in interstate commerce even though they are marked "short package."

Since a good deal of the harvesting and marketing season is still ahead before the law goes into effect, the department suggests that manufacturers adopt the standards at once, and that stocks and packages which cannot be used after November 1 should be fully utilized before that date. Package manufacturers and dealers are invited, if they desire to have their packages examined and tested, to ship them to the Bureau of Markets, U. S. Department of Agriculture, Washington, D. C., for such tests. The bureau will inform the sender whether the container complies with the provisions of the act. A set of instructions and standard dimensions will be sent to all who request it of the Bureau of Markets or of this JOURNAL.

Potato Grades.

Two standard grades for potatoes have recently been recommended by the U. S. Food Administration and the Department of Agriculture. Results of field tests in grading and packing and of experiments in marketing graded and ungraded potatoes show that

WARD'S TIP-TOP BREAD

is bread you can eat with a sense of safety because it is pure, clean and the standard of quality wherever sold.

It is pure, because only the highest grade bread making materials which money can buy are used in making it and the process under which it is made is the most advanced and scientific known to the baking industry.

WARD'S TIP-TOP BREAD is Clean because it is made in bakeries which are models of bread-making cleanliness. Every loaf is wrapped in waxed paper by MACHINE.

Hence, when you buy it you are guaranteed these three food manufacturing virtues—Quality, Purity and Cleanliness.

WARD BAKING COMPANY

Did You Like This Copy of The American Food Journal?

If so, and you are not already a subscriber, send the publisher your check for $1.50 and join the rapidly increasing ranks of those who believe in "good, wholesome food and lots of it."

The American Food Journal

15 South Market Street, Chicago

marketing potatoes by grades is desirable, practical and economical.

Further, it has been ruled by the Federal Reserve Board that "potatoes, properly graded and packed and stored in a weatherproof and responsible warehouse, as evidenced by its receipt, would undoubtedly constitute a readily marketable, nonperishable staple."

The present prospect of a very large crop of potatoes, the food supply situation, the overtaxed transportation facilities, and the ruling that Federal reserve banks may make loans against potatoes properly stored in approved warehouses emphasize, according to the department, the importance of adopting uniform grades.

GRADES RECOMMENDED.

The No. 1 grade shall consist of sound potatoes of similar varietal characteristics, which are practically free from dirt or other foreign matter, frost injury, sunburn, second growth, cuts, scab, blight, dry rot, and damage caused by disease, insects, or mechanical means. The minimum diameter of potatoes of the round varieties shall be one and seven-eighths (1⅞) inches, and of potatoes of the long varieties one and three-fourths (1¾) inches.

The No. 2 grade shall consist of potatoes of similar varietal characteristics, which are practically free from frost injury and decay, and which are free from serious damage caused by dirt or other foreign matter, sunburn, second growth, cuts, scab, blight, dry rot, or other disease, insects, or mechanical means. The minimum diameter shall be one and one-half (1½) inches.

Reasonable tolerances are allowed for variations incident to commercial grading and handling and explanations of the terms "practically free," "diameter," and "free from serious damage" are made in Markets Document No. 7, which may be obtained from the U. S. Department of Agriculture or from the U. S. Food Administration, Washington, D. C.

Bacterial Count of Ice Cream May Be Made From a Single Sample.

An analysis of the bacterial count of one sample from a gallon of ice cream will give results which will hold good for any other similar sample from the same gallon, according to bacteriologists of the Dairy Division of the U. S. Department of Agriculture, reporting their study in a professional paper, Bulletin 563 of the Department of Agriculture. In the experiments bacterial counts were made of nine samples taken from each of 22 one-gallon lots of ice cream furnished by seven different manufacturers. Allowing for proper variation, the bacterial counts for each of the nine samples from any one lot were fairly consistent.

Test for Waterproof Paper.

Now that paper containers are destined in large measure to take the place of tin cans, the matter of checking up on claims of the waterproof qualities of paraffined papers is actively before many food product manufacturers. Mr. F. J. Seiter, writing in *The Chemist Analyst,* No. 21, states that the relative porosity of paper, especially waxed or waterproof paper, may be conveniently determined by means of apparatus which is simple, inexpensive and easily constructed from common materials.

The apparatus is essentially a Graham dialyzer in which the semi-permeable membrane is replaced by the paper to be tested while the liquids on either side of the membrance are solutions of salts which form upon mixture a colored precipitate, e. g., ferric chloride and potassium ferrocyanide, which form, upon mixture, Prussian blue.

The apparatus was made as follows: A thick walled glass jar, three inches diameter, with a metal screw top, was scratched completely around, two inches from the top, with

BAKE A LIBERTY LOAF WITH WHITE CORN FLOUR

MORE than three billions of bushels of corn will be produced this year—a bumper crop. This means an abundance of corn products—which must be made the nation's mainstay so as to conserve the diminishing wheat supply.

There is no better, surer way to save the wheat than through the baker's more extended use of White Corn Flour. White Corn Flour, which is milled by the same processes as wheat flour, and has equivalent food properties, should be used not as an adulterant, but as a helpful, practical admixture to wheat flour.

As much as 5% to 15% White Corn Flour can be mixed this way, thus conserving millions of bushels of wheat for the nation's needs, without sacrificing the nutritive value of the loaf of bread.

White Corn Flour Saves in Many Ways

To the baker the use of White Corn Flour is practical economy. Pound for pound, it is cheaper than wheat flour. White Corn Flour absorbs from 100% to 200% or more water. **"It fairly eats water,"** to use the exact words of Mr. Emil Braun, expert and consulting baker.

White Corn Flour saves shortening and makes the yeast work better. Your bread will keep fresh and moist longer, so this helps to solve the "no-return" problem of stale loaves. Your bread will have a fine texture, crisper crust, and a palatable, nut-like flavor. You'll produce both a distinctive and a quality loaf. It is a patriotic duty to keep the price of bread down. The use of White Corn Flour will help you do so by producing **more loaves at less cost.**

Many bakers are now using an admixture of these two flours, and they have been convinced that such a loaf is highly pleasing to their customers. tI's **white** bread—not **war** bread.

Corn Flour must not be confused with Corn Starch. Corn Starch is solely a carbohydrate—and has none of the other nutritive properties of Corn Flour.

For samples, prices and further information write to

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947 West 6th St., Cincinnati, Ohio

National Association of White Corn Millers

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Fiber Cans and Mailing Cases
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BON BON
The Original Alum Baking Powder
Never surpassed in wholesomeness, leavening or keeping qualities. Immense output. Low price.
J. C. Grant Chemical Co., E. St. Louis, Ill.

Illinois Vinegar Mfg. Company
19th and Rockwell Streets
CHICAGO, ILL.
MANUFACTURERS OF HIGH GRADE
DISTILLED VINEGAR

Canned Salmon
ALL GRADES ALL SIZES
Largest Distributors in the World
KELLEY- CLARKE CO.
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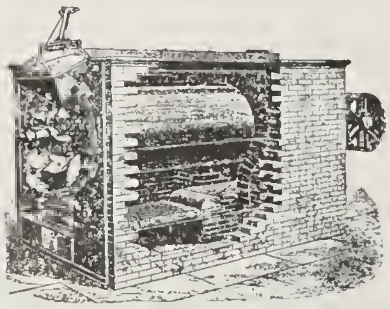
GOTTFRIED BAY
successor to Chris. Abele
537 West 50th Street, New York



"Dufour" Bolting Cloth
Mustard Mills
French Burr Stone Grinding Mills
Manufacturer of
ROASTING, GRINDING AND SPECIAL MACHINERY

a file. The mark was further deepened with the file and then at one spot the mark was made so deep that a glowing carbon pencil, or hot glass rod, applied to the spot caused a crack to form. This crack was carefully led around the jar along the deep file cut by means of the carbon pencil so that when the crack had been finished, a gentle pull caused the bottom of the jar to come off. The sharp edges of glass were smoothed down by means of a file moistened with turpentine containing 10% camphor.

A circular opening, two inches diameter, was cut in the metal screw top and rubber gaskets, similar to the ordinary fruit jar rings, were made to fit snugly inside the screw cover and wide enough to come just to the inner edge of the circular opening.

The paper to be tested was cut into disks of the same diameter as the outside diameter of the rubber gaskets which, in this case, was 2⅞ inches.

To make a test, place a rubber gasket in the screw cover, upon this place a disk of the paper to be tested, upon the paper place another gasket and finally screw the glass cup into place firmly but carefully to avoid accidental rupture of the paper.

The glass cup thus prepared with its paper bottom is then placed upon a glass triangle in a slightly larger jar. Into the outer jar is poured enough solution of potassium ferrocyanide to bring the level of the liquid slightly above the level of the paper. Into the glass cup is poured ferric chloride solution to completely cover the paper and make the level inside and outside the same. It is advisable to always put the ferric chloride in the inner cup and not the outer jar as ferric chloride attacks the tin or aluminum screw cover. The apparatus is then covered with a watch glass, to keep out dust and prevent evaporation, and set aside for observation.

As the solutions gradually penetrate the paper from opposite sides and meet within the pores of the paper, the ferric chloride and potassium ferrocyanide react to form the familiar Prussian Blue precipitate. The time required for the first appearance of the blue color is an indication of the relative porosity of the paper being tested. Naturally, very porous papers react almost instantly while waterproofed papers may withstand the test for several days before the blue color appears.

The solutions of ferric chloride and potassium ferrocyanide were made up by dissolving 65 grams ferric chloride in a liter of distilled water and 127 grams potassium ferrocyanide in a liter of distilled water.

Other solutions might well be used in place of the above but the blue color proved quite satisfactory as the disks could be thoroughly washed and preserved for future reference without any perceptible change for a year.

To Prevent Worminess in Chestnuts.

The U. S. Department of Agriculture advises that chestnuts be fumigated with carbon disulphid to kill the larvae of chestnut weevils. Put the nuts in a large water-tight barrel. Into a pie pan on top of them pour an ounce of carbon disulphid for each bushel. Cover barrel immediately with a piece of oilcloth or heavy tarred paper to keep in the fumes. Allow to stand under fumigation for 15 to 24 hours. Remove nuts from the container and air thoroughly for about one hour. This fumigation kills any worms present, greatly reduces losses in transportation and storage and will not affect the edibility or appearance of the product.

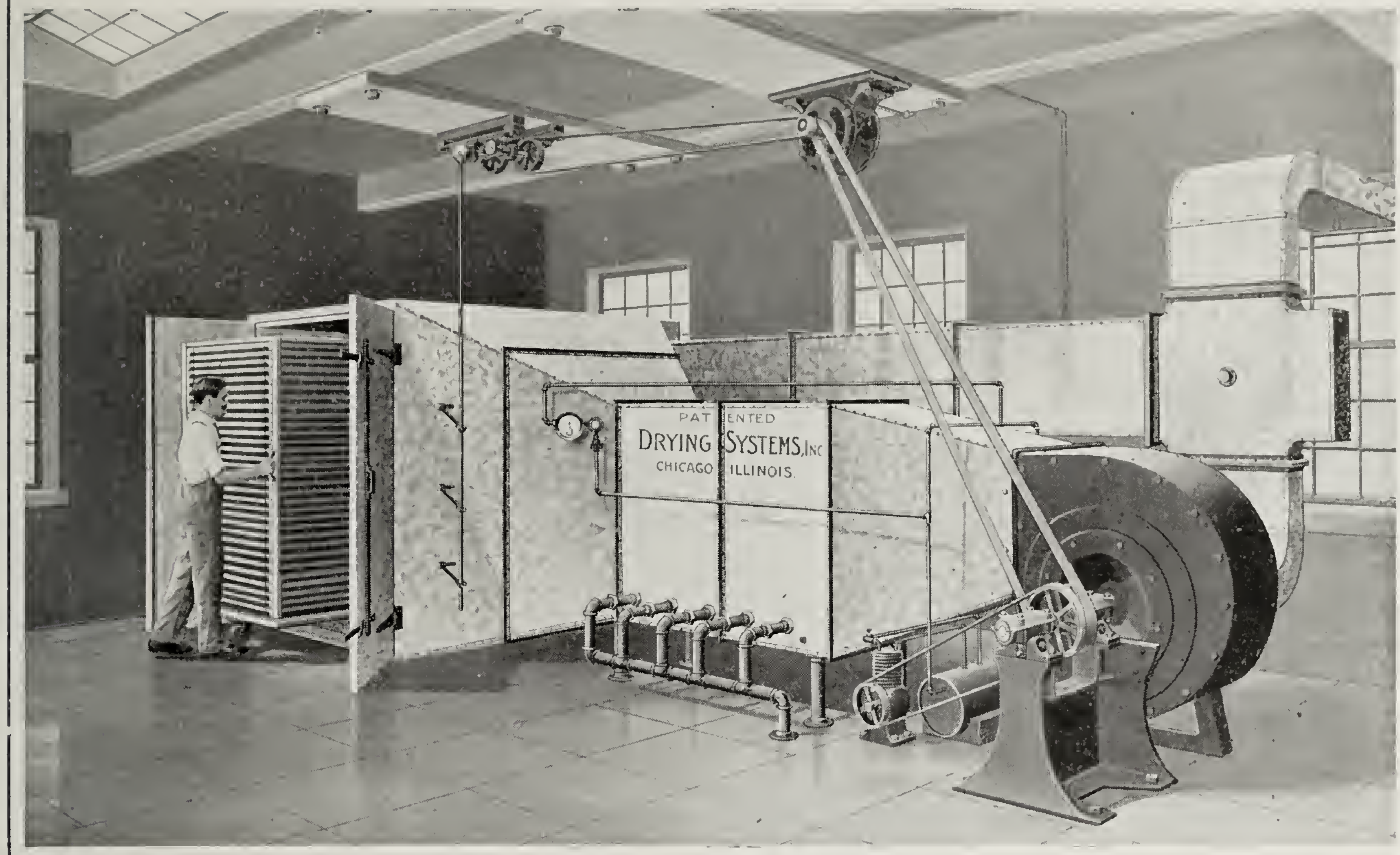
Caution.—Carbon disulphid is very inflammable and can be ignited by a match, lantern, cigar or pipe.

Annual Convention of National Coffee Roasters' Association.

The seventh annual convention of the National Coffee Roasters' Association will be held on November 14 and 15 at the Congress Hotel, Chicago, Illinois.

Annual Convention of Dairy and Milk Inspectors.

On October 15, 16 and 17, at the Raleigh Hotel, Washington, D. C., will take place the sixth annual convention of the International Association of Dairy and Milk Inspectors.



A TYPICAL INSTALLATION OF THE COMMUNITY DRYVENTOR

Conserve Our Food By DEHYDRATION

THE DRYVENTOR is a perfected mechanical equipment for the dehydration of food products, such as potatoes, onions, cabbage, carrots, fruits and berries. **The Dryventor System** has been developed by nine years of experimentation. It is the **System** which produces the world-famous Dryfresh Dehydrated Food Products, used and endorsed by the armies and navies of the world, by celebrated cooking experts, and by hundreds of individual householders in their own homes.

THE DRYVENTOR is not an experimental make-shift designed to meet the present critical demand for conservation. These results are **guaranteed** with **The Dryventor:** A perfectly dehydrated product which is practically imperishable and which can be packed in paper or wooden containers; a product which by immersion in water regains all of its original characteristics of flavor, aroma and palatableness. DRYVENTOR PRODUCTS can be cooked exactly like the fresh green food. THE DRYVENTOR reduces bulk from 50 to 80% and reduces weight from 70 to 90%.

We are prepared to erect complete community or commercial plants in from 3 to 4 weeks. THE DRYVENTOR SYSTEM presents exceptional possibilities to the community interested in the preservation of surplus perishable food products, or to the municipality concerned with the vital matter of "stop-loss" dehydration of perishable foods.

As an investment DRYVENTOR plants insure an attractive profit to the operators, besides conserving invaluable food products to the nation and its allies.

An attractive booklet will be sent upon request.

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GOOD-BYE FLY
According to Department of Agriculture Bulletin No. 118: Apply 0.62 pounds Borax to every 10 cubic feet of manure. Apply Borax particularly around edges; sprinkle with 2 or 3 gallons of water. This treatment should be repeated with each addition of fresh manure. Flies lay their eggs in fresh manure. Borax prevents their hatching.
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Eat of the Banana.

Few of us realize how substantial a food is the succulent banana. A well ripened banana is rich in sugars and other available carbohydrates. It is well digested by practically everyone and, thanks to the steadying effect of its being in the hands of a large selling organization, it is up to the present time being sold at a reasonable price per Calorie. The banana could and should be used far more generally than is the case at present. It lends itself well to many and various methods of preparation, a fact which should be made use of in order to avoid becoming satiated by its sweetness. Full information as to how to serve bananas can be obtained by sending to Mr. J. Winter Davis, treasurer and secretary of the Fruit Dispatch Company, 17 Battery Place, New York City. The banana people publish a monthly periodical devoted entirely to that subject, and while it is primarily for the trade it contains much of value to the dietitian and to the housewife.

The 1917 Rice Crop.

J. R. Leguenec, secretary and statistician of the Southern Rice Millers' Association, has compiled a complete statement showing that the 1916-17 rice crop in the United States totalled 9,672,389 bags, averaging 186.30 pounds each. Reduced to bushels the crop amounted to 40,045,839 bushels, as compared with the estimate of the Government bureau of crops estimates of January last, which was 40,702,000 bushels. The report shows the receipts of rough rice by association mills amounted to 4,047,600 bags and for the three states the receipts were 8,348,325 sacks.

The California crop was 900,000 and the North Atlantic States and Missouri totaled 53,130 bags. Seed to plant 978,107 acres amounted to 489,053 bags, which, added to the total receipt aggregated 9,790,508 bags. After deducting 61,968 sacks for the carry over, 35,272 for seed sold by mills and 20,879 bags of California rice milled in Texas and Louisiana, the actual crop for the season amounted to 9,672,389 bags.

Oleomargarine Gaining in Popularity.

The preliminary report of the United States Commissioner of Internal Revenue for the fiscal year ending June 30, 1917, reports tax collections on oleomargarine indicating the largest production on record. The tax receipts for the year indicate a production of 6,327,168 pounds of artificially colored product and 228,066,008 pounds of uncolored product, or a total of 234,393,176 pounds of oleomargarine on which tax was paid for the year. The total production the previous year was 152,123,725 pounds.

The government derived a revenue of $1,995,720.02 from oleomargarine taxation during the fiscal year, of which $792,838.24 came from special taxes paid by manufacturers and dealers, in addition to the tax per pound on the product.

These figures tell their own story. The growth of the public demand for the product, in spite of heavy discriminatory taxation imposed in the interests of butter, is strikingly significant.

"The red-headed Halogens are a great family. Fluorine is the young devil. Chlorine is full of guile in her green robe. Bromine puts us to sleep, and Iodine is the old man with a past."—Arthur D. Little in *The Little Journal.*

THE AMERICAN FOOD JOURNAL

—with which was combined on St. Patrick's Day, 1917—

The American Food Manufacturer

There is no higher art than that which tends toward the improvement of human food.—*Henry Ward Beecher.*

ROBERT GORDON GOULD, *Editor*

Vol. XII NOVEMBER, 1917 No. 11

The "Food Show."

Believing that the spectacular appeal of vast concourses of people, comprehensive exhibits hailing from all parts of the country and covering all phases of the food industry, and addresses and demonstrations on food conservation by competent authorities will be an effective means of bringing home to the people the need for intelligent conservation of food if we are to win the war, the Illinois State Council of Defense has arranged to conduct a "Food Show" during the week from January 3 to 12 at the Coliseum, Chicago. The program will consist of a constant succession of addresses and demonstrations on all subjects pertaining to the nature and use of food, the use of appropriate substitutes for old favorites, economical purchasing, proper methods of preparation and preservation and the elimination of waste with, of course, much in the way of dietetics.

The first session will be opened by government officials and during the succeeding days practically every prominent official in the food conservation movement will be heard. In a word, the purpose of this "Food Show" is educational rather than commercial. Those who attend will be given the best present knowledge regarding food, the information to come from those who have the public welfare as their sole consideration.

In order to defray necessary expenses a certain amount of space on the floor of the Coliseum will be sold to those in the food industry who wish to cooperate with the state officials in this movement. Among the more significant exhibits will undoubtedly be demonstrations of how to use the cheaper cuts of meat, the use of fish as a substitute for meat and of eggs and milk as a source of protein, the use of cereals other than wheat as a source of starch, the use of sweetening agents other than granulated sugar, the use of inexpensive fats, increased use of vegetables and fruits and of other items which have a tendency to broaden the dietary.

As this "Food Show" is designed to interest the housewife who wants to do her bit by seeing to it that her own "commissary department" is being run on patriotic lines it is quite safe to assume that there will be many exhibits of labor-saving devices for use in the kitchen, such as tables, cabinets, fireless cookers, dish washing machines, refrigerators and a multitude of others.

The "Food Show" is being produced under the management of the State Council of Defense. Messrs. P. E. Fleming and E. W. Lloyd are actively in charge of details, and the matter of securing exhibits has been entrusted to Mr. R. G. Gould of this JOURNAL.

Packaged Goods in Canada.

By virtue of a recently promulgated Order in Council it will soon be illegal to sell throughout the Dominion of Canada packaged cereals in anything smaller than 20-pound units. Below that weight all sales must be made from bulk. This Order, which has the effect of law, is of real and immediate interest to many American food manufacturers who either have branch factories in Canada or who have built up important Canadian trade. The original Order in Council stipulated that it should be effective November 1 but that time has been postponed until December 31. A committee has been appointed to frame regulations for carrying out the provisions of the Order, and it is understood that this committee has been given considerable discretion in regard to exemptions, the granting of which is rendered possible by the terms of the Order.

There is, of course, an element of harshness in orders of this sort. Many specialty houses are literally founded upon traffic in small unit packaged cereals. So highly developed has this business become that certain packaged cereals furnish the public more in the way of food value per unit of cost than do bulk cereals. As a case in point we have but to refer to the November 1 prices on Quaker Oats at about 10 cents a pound and rice at almost 12 cents, the former being a factory-packed cereal and the latter being sold from bulk. On the other hand, the economist who would plead the cause of packaged cereals in general must be ready to accept much in the way of disquieting statistical data.

It has been well demonstrated that by making use of large manufacturing units, employing the best modern manufacturing and selling practice and in all ways striving for economy of production, the specialty manufacturer can compete, on a reasonable price ratio, with bulk goods of the same general nature, and still identify his product by packing it in cartons. The present action in Canada seems to overlook that fact in its entirety. It is unfortunate that the Canadian officials did not go one step further and perform a really constructive bit of work by pointing out what, in their opinion, should be considered a fair price ratio between packaged cereals and products of the same general nature sold from bulk.

The Milk Situation.

Since last month's resumé of the milk situation there have been even more interesting developments. Acute interest has shifted from Wisconsin to Chicago and New York City.

In the middle of the month the five members of the ruling board of the Illinois Milk Producers' Association were indicted for conspiracy to fix the price of milk, and conspiracy in restraint of trade, for boycotting and for blacklisting. The charges were based on evidence secured in a raid on the milk producers' office in Chicago.

This, however, only complicated matters. Later in the month the Milk Producers' Association published in its official organ suggested future price figures based upon cost data put together by a University of Illinois professor, indicating that the November price to distributors might be $3.71 a hundred pounds, an increase of 29 cents, and $3.78 for December. At the same time the dairy companies declared that such a price demand by the farmers would unavoidably force up the retail price to 14 cents in November and 15 in December.

On the last day of the month, however, the dealers took matters into their own hands and notified the farmers that $3 (the October price had been $3.42) per hundred pounds was the maximum they would pay. In the resulting deadlock much hard feeling ensued. Many of the organized farmers threatened to feed their milk to the hogs, and even to throw it on the ground, rather than sell under $3.71. For three days the consumer felt the pinch, deliveries being cut in half and even less. Food Administration Wheeler called a conference between the dealers and the 16,000 striking farmers on the second of November, and finally a compromise was reached. The farmers agreed to accept $3.22 per 100 pounds during November and December, the price to be fixed from January 1 by the Food Administration, and the farmers to be reimbursed by higher prices until July 1 in case an inquiry proved that they had lost money during November and December. The dealers agreed to retail milk at 12 cents a quart.

The Wisconsin commission, appointed to settle the milk situation in that state, had decided on a higher price, but agreed to accept the Illinois figure as the basis for settlement in Wisconsin.

In New York City the Mayor's investigating committee has sent a letter to the principal dairymen and distributors, declaring that their investigations have shown that the high cost of milk has reduced the total city supply 25 per cent and the demand in many parts of the city 50 per cent, and has caused an increase in infant mortality due to decreased milk consumption; that of the advance from 9 to 14 cents during the past year the farmers have received 4 cents and the distributors one; and that the contemplated further advance from November 1 would be extremely injurious to public welfare. The committee requested that the advance be postponed.

Oleomargarine in Canada.

By a recent Order in Council the Canadian market has been opened to oleomargarine. Until now the situation has at all times been kept in hand by the dairy interests, which are powerful and well organized in the Dominion as elsewhere. For over a year organizations representing the public together with many retail grocers have been endeavoring to secure for our Canadian cousins the right to eat oleomargarine, properly labeled, if they so desire. Not until the price of butter attained its present height were they able to have action taken favorable to their contentions. The Order in Council is printed elsewhere in this issue and, as it states plainly, is for the duration of the war. It is to be hoped that a move so rational as this will not be nullified when peace is finally declared.

Elgin Butter Board to Close for Period of War.

The United States Food Administration has requested the president of the Elgin Butter Board to close the board during the period of the war, and has received a reply that this will be done.

A half century ago Elgin was the center of the creamery industry in northern Illinois, which became generally known as the Elgin district. The small creameries in this territory were pioneers in inaugurating a practice of offering their butter for sale to buyers at meetings of the Elgin Board of Trade, which was attended by butter dealers from Elgin, Chicago, and other cities.

For many years the quotations established for creamery butter and butter fat by the Elgin board were the basis on which creameries generally sold their butter and purchased their butter fat. This condition to some extent still prevails, although Elgin has ceased to be either a butter or creamery center, due to the fact that Chicago has absorbed the milk from that district for city distribution and condensing.

The Food Administration states that it thinks it advisable that butter prices be more dependent upon actual market conditions and demands, and it is for this reason that the request to close was made.

Recommended Prices.

By all odds the most significant action so far taken by any Federal State Food Administrator is that of Hon. Harry A. Wheeler in making daily recommendations as to what constitutes fair prices for various basic foods. The legal remedy for unfair prices will be found in the license system, by cutting off supplies to retailers through licensed wholesalers. After stating that the purpose of the Food Administration is price interpretation, not price fixing, and that if consumers want fair prices they should bear in mind these published and insist on paying only these, reporting excess charges to the Food Administration and in such cases doing their buying elsewhere, Mr. Wheeler authorized the publication of daily price lists, the following being for November 1:

DAILY FOOD PRICE BULLETIN.

(Prepared by the U. S. Food Administration.)

Prices being paid by retailers for the staples named and the prices which they should not exceed are as follows:

	Retailer pays.	Consumer should pay.
SUGAR.		
GRANULATED—	Per 100 lbs.	Per lb.
Beet in bulk	$7.65 to $7.76	7¾c to 8½c
Western cane in bulk	7.65 to 7.76	7¾ to 8½c
FLOUR. (Well known adv. mill brands in cotton bags.)	Per bag.	Per bag.
¼ brl.	$2.73 to $2.92	$2.80 to $3.18
⅛ brl.	1.38 to 1.48	1.45 to 1.60
5 lbs.	30½c to 32c	33c to 37c
RYE FLOUR. (In cotton bags.)	Per bag.	Per bag.
Bohemian style, mixed, ⅛ brl.	$1.29 to $1.37	$1.37 to $1.50
Pure white or patent, ⅛ brl.	1.29 to 1.37	1.37 to 1.50
Dark, pure, ⅛ brl.	1.18 to 1.28	1.26 to 1.41
Bohemian style, mixed, 5 lbs.	.29 to .30	.32 to .35
Pure white or patent, 5 lbs.	.29 to .30	.32 to .35
Dark, pure, 5 lbs.	.27 to .29	.30 to .34
CORNMEAL.	Per 100 lbs.	Per lb.
White, bulk	$5.25 to $5.50	5¾c to 6½c
Yellow, bulk	5.25 to 5.50	5¾c to 6½c
MILK.		
EVAPORATED—	Per can.	Per can.
(Unsweetened)	11½c to 12¼c	13c to 15c
CONDENSED (sweetened)—		
Highest grades	15⅝c to 16⅜c	18c to 21c
Medium grades	14⅜c to 15⅛c	16½c to 18½c
BUTTER.		
CREAMERY—	Per lb.	Per lb.
Extras in tubs	43½c to 45c	44½c to 50c
Extras in cartons	44½c to 46c	45½c to 51c
OLEOMARGARINE.		
STANDARD GRADES—	Per lb.	Per lb.
In cartons	29c to 30c	32c to 35c
In rolls	28c to 29c	31c to 34c
MEDIUM GRADES—		
In rolls and bulk	27c to 28c	30c to 33c
EGGS.		
STRICTLY FRESH, Candled—	Per doz.	Per doz.
Extras, approx. 24 oz. per doz.	44c to 45c	45c to 50c
No. 1, approx. 23 oz. per doz.	43c to 44c	44c to 49c
REFRIGERATOR, Candled—		
Extras, approx. 23 oz. per doz.	39c to 39½c	40c to 44½c
No. 1, approx. 22 oz. per doz.	38½c to 39c	39½c to 44c

Note—Eggs in cartons, 1½c per doz. more than above prices.

POTATOES.	Per 100 lbs.	Per pk., 15 lbs.
No. 1 Wis., Minn. and Dakota	$2.15 to $2.35	39c to 43c

(Other commodities will be listed from day to day.)

The first column shows prices the retailer necessarily pays on today's market to replenish his stock. To these prices the margin of profit is added, giving these figures in the second column, headed "Consumer Should Pay." From both columns all may see what profits are being made.

Delivery service is expensive. Carry your goods home if you can, and do not exact more than one delivery daily.

Retailers are advised to limit quantities to current needs of their patrons.

Beet sugar factories are now running and the situation is improving daily. Prices will not advance.

Flour is in better supply—mills are grinding at full capacity again. Please use some corn meal, rye flour and other substitutes and less white flour.

Many frosted and inferior potatoes are still in the market. Prices quoted are for high-grade, unfrosted.

The canned milk prices are for the so-called "tall" or standard size cans. The small or "baby" cans are not to be confused with standard size and are usually 6c per can less at retail.

Eggs—Notice to Consumers and Dealers:

The laws and regulations require packages and wrappings containing storage eggs to be plainly marked. There must be strict observance of this requirement.

Wholesalers are expected to show plainly on every bill and delivery ticket either that the eggs are "Fresh" or "Cold Storage."

Retailers are expected to see that the foregoing requirement is observed, also to keep bills and delivery tickets on file. Retailers also should show on their bills, delivery tickets and sales slips, whether eggs are "Fresh" or "Cold Storage."

Consumers are requested to note the foregoing requirements and help the Food Administration by seeing that bills and delivery slips are plainly marked.

The lower figure of the two wholesale quotations is that given by the producer to large buyers and the higher figure is the price demanded of retailers who purchase in small lots; the lower price to the consumer is the price to be asked for goods which are paid for in cash and carried home, the higher price being intended to cover the cost of delivery and loss due to bad accounts and other expenses incident to credit dealing. The list started on October 25 with sugar, flour, potatoes and condensed milk and is being added to daily. It is of interest to compare these figures with the price chart for the country as a whole as shown elsewhere in this issue.

Woman's Part in War.

Probably only those intimately connected with the food industry fully realize just how vital is to be the part that the American housewife will play during this war. From every quarter we hear it stated that modern warfare is a conflict of nationalities, the final result dependent upon the thoroughness with which a nation is willing to carry out measures designed to support the fighting forces. Gone apparently forever are the old days when the men folks of a tribe sallied forth to a nearby meadow to do battle with the men folks of a hostile tribe, the whole affair of honor being conducted between sunrise and sunset. Modern warfare has now reached the point where neither *morale* nor artillery fire is effective unless the nation as a whole is determined that it shall be effective. And in bringing about such a state of affairs the women are the determining factor. During the critical months ahead of us the women of America will have an opportunity to show their mettle, and to those who are informed as to the businesslike manner in which they are undertaking their task there is no doubt as to the ultimate result.

Turn to Our Food Chart.

In obtaining the prices in our food chart every effort has been made to exclude both the fancy-priced and the cut-rate grocery, and to represent typical average stores serving the great middle class.

Quotations in all cases are on commodities of standard quality; the grades that make up the great bulk of the sales.

The calorie prices are based upon Sherman's *Food Products.*

THE AMERICAN FOOD JOURNAL acknowledges with thanks the co-operation of the food control officials, and the retail grocers who have assisted in the compilation of this table.

Differential Between Packaged Foods and Foods in Bulk

Information secured by W. T. SHERER, Sherer-Gillett Company, Chicago, at the suggestion of

HON. HARRY E. BARNARD

State Food and Drug Commissioner of Indiana

NOTE—These prices were in effect between July 20th and July 31st, 1917.

Kind of Goods	Bulk Pound Price to Retailer. Cents	Package Pound Price to Retailer Cents	Charge for Factory Packaging Cents Per Lb.	Net Weight of Package	Bulk Pound Price to Consumer. Cents	Package Pound Price to Consumer. Cents.	Excess Consumer Pays for Package Over Bulk. Cents Per Lb.	Name and Address of Retail Grocer from Whom Information Was Secured
Graham Flour	8.75	7.0	*—1.75*	5 lbs.	9.5	10.0	0.5	Power Mercantile Co., Lewistown, Mont.
Rye Flour	6.85	7.5	0.65	10 lbs.	7.5	9.0	1.5	Henry Remus, Dubuque, Iowa
Corn Meal	4.25	4.72	0.47	9 lbs.	5.0	6.1	1.1	Bingham, Dodge City, Kan.
Corn Meal	4.95	5.64	0.69	1½ lbs.	6.5	10.0	3.5	Pettis Dry Goods Co., L. A. Jackson, Indianapolis, Ind.
Corn Meal	4.9	8.3	3.4	28 oz.	7.5	12.4	4.9	A. F. Yiegert, San Francisco, Cal.
Hominy	6.0	5.6	*—0.4*	2 lbs.	8.0	7.5	*—0.5*	L. Rivkin, Cleveland, Ohio
Pearled Hominy ..	4.6	6.9	2.3	1½ lbs.	7.5	10.0	2.5	Robertson and Cahill, Alton, Ill.
Oat Meal	7.0	7.7	0.7	1¼ lbs.	10.0	10.4	0.4	S. H. Pinkerton, Waterloo, Iowa
Oat Meal	6.5	7.33	0.8	1 lb., 4 oz.	9.0	12.0	3.0	I. B. Jackson, Huntsville, Mo.
Rolled Oats	5.0	7.6	2.6	1 lb., 4 oz.	7.5	9.6	2.1	H. W. McQuaid & Co., St. Paul, Minn.
Rolled Oats	4.5	6.4	1.9	3¾ lbs.	5.25	8.0	2.75	The Capitol Grocery, Regina, Saskatchewan, Canada
Pearled Barley	7.5	15.1	7.6	11 oz.	12.5	21.7	9.2	Chas. Hewitt & Sons Co., Des Moines, Iowa
Macaroni	4.75	12.0	7.25	10 oz.	6.25	16.0	9.75	Star Grocery, Seattle, Wash.
Macaroni	10.0	11.1	1.1	12 oz.	15.0	20.0	5.0	Jas. Elsberry, Lehigh, Iowa
Soda Crackers	16.0	20.0	4.0	8 oz.	22.0	30.0	8.0	J. J. Dowling, Seattle, Wash.
Soda Crackers	15.0	20.6	5.6	8 oz.	18.0	26.5	8.5	T. R. Dunkin, Cornwall, Ontario, Canada
Oyster Crackers ...	13.0	20.0	7.0	8 oz.	20.0	30.0	10.0	Ackmans Grocery, Burley, Idaho
Oyster Crackers ...	14.0	16.6	2.6	6 oz.	20.0	26.6	6.6	F. W. Mackie, New Orleans, La.
Graham Crackers ..	11.5	24.0	12.5	8¼ oz.	17.0	29.0	12.0	J. W. Skinnell, Columbus, Ohio
Oat Meal Crackers.	18.0	25.0	7.0	8 oz.	25.0	30.0	5.0	Queen City Grocery, Seattle, Wash.
Ginger Cookies	18.0	23.2	5.2	7¾ oz.	25.0	30.8	5.8	Scott Grocery Co. Kansas City, Mo.
Shredded Cocoanut.	18.5	26.5	8.0	1 lb.	30.0	50.0	20.0	W. H. Mark, Jessie, N. D.
Cocoa	18.0	32.0	14.0	1 lb.	25.0	45.0	20.0	Andrew Pezzette, Minneapolis, Minn.
Tapioca	12.0	16.6	4.6	8 oz.	15.0	25.0	10.0	The Capitol Grocery, Regina, Saskatchewan, Canada
Tapioca	10.0	15.2	5.2	8 oz.	13.0	20.0	7.0	Hartwig & Smith, Seattle, Wash.
Whole Cloves	40.0	40.0	none	3 oz.	50.0	53.33	3.33	C. Olson, Cannon Falls, Minn.
Ground Pepper.....	28.0	40.0	12.0	3 oz.	35.0	53.33	18.33	Eppen-Ryan & Co., Goodhue, Minn.
Ground Pepper.....	35.0	60.0	25.0	1 oz.	50.0	80.0	30.0	M. G. Drites, Derry, Pa.
Ground Allspice....	28.0	40.0	12.0	3 oz.	50.0	53.0	3.0	T. R. Dunkin, Cornwall, Ontario, Canada
Ground Ginger.....	44.0	60.0	16.0	1 oz.	60.0	80.0	20.0	G. Overholt, McKeesport, Pa.

The items preceded by — and in italics are those where bulk foods are more expensive than packaged foods.

The Sugar Situation

By the Editor.

TO HANDLE the sugar situation adequately, the Food Administration last month arranged for the formation of an International Sugar Committee of five members. Two members were named by the Allied Governments, Sir Joseph White-Todd and John V. Drake, Sr., both of whom are familiar with the sugar situation. The two American members appointed by Mr. Hoover were Earl D. Babst, president of the American Sugar Refining Company, and William A. Jamison of Arbuckle Brothers, neither of them interested in any way in the production of Cuban sugar. George M. Rolph, head of the Sugar Division of the Food Administration, is the fifth member. The three American members are to act as a subcommittee to handle purely domestic questions with which the Allied members are not concerned.

To co-operate with the International Committee in handling the imported sugar that comes to the United States refineries, a committee has been formed of American refiners, C. A. Spreckles, James H. Post and C. M. Warner of New York, George H. Earle of Philadelphia, and Dwight P. Thomas of Boston. On October 17 the International Sugar Committee and the American Refiners' Committee opened their offices at 111 Wall Street, New York City.

A third committee has been formed, known as the Food Administration Sugar Distributing Committee, whose duty is to handle the details of the distribution of beet sugar. It consists of: W. H. Hannan, San Francisco; S. H. Love, Salt Lake City; W. S. Petriken and E. C. Howe, Denver; S. W. Sinsheimer, Huntington Beach, Cal.; W. P. Turner and H. A. Douglass, Detroit.

To gain any clear idea of just what the sugar situation is, and just why it is, it is necessary to go back into pre-war history and compare with the situation before July, 1914, matters as they stand today.

In 1917 the United States exported 1,254,551,280 pounds of sugar, over eighteen times as much as it had averaged in the three years before the war. In 1916 these exports were 1,665,895,639 pounds, nineteen times the average for the three pre-war years.

Out of our total exports our western Allies, who in 1914 received but 5,195,879 pounds, in 1916 received 1,328,242,883 pounds, and in 1917 a total of 766,097,128 pounds. The northern neutrals, Sweden, Norway, Denmark and Holland, who prior to the war were purchasing practically no sugar from the United States, last year bought 140,944,415 pounds. A proportional increase has been made in our exports to Mexico and South America.

The decrease in our 1917 sugar exports of 411,000,000 pounds is more than accounted for by the decrease in our shipments to England of 734,000,000 pounds. The great increase in our exports to the western Allies is directly due to the cutting off of English imports from Germany, Austria-Hungary and Belgium, together with the decrease in sugar crops in France and Italy.

Before the war Europe supplied in a large measure its own needs, through the production of beet sugar, as shown in the following table compiled by the Food Administration, and giving the average yearly production and consumption for the five years before the war (1909-1913) in some of the chief countries of Europe:

	Production. Short tons.	Consumption. Short tons.	Surplus (+) or deficiency (—). Short tons.
Germany	2,525,899	1,299,585	+1,226,314
Austria	1,651,889	679,204	+ 972,685
Russia	1,659,947	1,322,285	+ 337,662
United Kingdom		2,056,000	—2,056,000
France	752,542	704,830	+ 47,712
Italy	211,050	190,000	+ 21,050
Belgium	279,918	120,358	+ 159,560
Holland	246,146	131,538	+ 114,608
Total			823,591

Thus, of our Allies, England alone was not self-supporting. About 70 per cent of the supply of the United Kingdom came from countries from which it is now cut off by the war: 38.55 per cent from Germany, 15.73 per cent from Austria-Hungary, 9.43 per cent from the Netherlands, 6.7 per cent from Java. Ten per cent came from the East Indies and 20 per cent from the United States, Cuba and the West Indies.

The prospective 1918 crop in France has diminished to 207,000 tons and that of Italy to 75,000 tons, and they are therefore short 590,000 tons. The displacement of United Kingdom supplies amounts to 1,435,000 tons, and therefore, in total, these three Allied countries must import about 2,700,000 tons in order to maintain their normal consumption. Of this, 2,000,000 tons must come from new sources.

England before the war had the largest per capita consumption of sugar of any nation—93 1-3 pounds per person per year. This has now been reduced to 26 pounds per year, or about 1 ounce per day per person.

The United States consumption of sugar averages about 90 pounds per year per person. The Food Administration has asked the saving of 7 ounces per week per person, which would still leave us a per capita consumption of 67 pounds per annum, as compared with the 26 pounds in England, 18 pounds in France, and 12 pounds in Italy.

In Italy, because of the shortage of sugar supplies, the Government has set a retail price of $1.25 for a box containing 2.2 pounds. In England prices have been fixed for jams and jellies retailed from the factories and homemade jams and jellies, so dear to the Briton's heart, have become practically obsolete. In France the Government distributes sugar rations at about 25 cents a pound. In comparison our 7 to 11 cent price seems almost negligible.

From the foregoing figures it is evident that in solving the problem of decreased world production of sugar, the United States and Cuba, the two great producers of the western world, must play leading parts. And for this end was formed the great International Sugar Committee, already referred to.

At the end of September our Food Administration issued a statement explaining the sugar situation and outlining its policy in dealing with the conditions. Domestic sugar, it explained, whether cane or beet, follows the trend of prices in the New York market, and the New York price is based upon the Cuban price for the raws. Since about 50 per cent of the sugar consumed in the country is imported from Cuba, Cuban sugar is therefore the dominating factor in the market and actually controls the price in the United States. Thus the Administration, in attempting to control sugar prices, had to go to the source of the price fixing and make an effort to reach some sort of an agreement with the Cuban planters as to the prices to be paid for the next Cuban crop beginning in December. According to the Administration's statement, it had no intention of regulating domestic producers in any way, regarding their actions as entirely dependent on those of the Cuban producers.

The situation was changed, however, in June and July by the introduction in Congress of bills providing for the elimination of the drawback on export sugar and the application of a consumption tax. Foreign buyers, who had been purchasing from American refineries, at once decided that it was to their interests to buy direct from the Cuban market at any price not exceeding an advance of 1½ cents, the extent to which sugar would have been affected if the bills had been passed. The resulting speculation in Cuban sugars advanced the price from 5.77 in the last week of June to 7.77 in the first week of August, and the refined sugar prices rose as high as $9.15 per 100 pounds. The Administration promptly appealed to the domestic beet sugar producers to save the situation, and representatives of these agreed to sell their October crop at a price not exceeding 7.25 cane basis Seaboard refining points. As a result the Cuban prices soon dropped to more normal levels, and, consequently, the domestic price.

Two San Francisco cane sugar companies, the Western Sugar Refining Company and the California-Hawaiian Sugar Refining Company, agreed to meet the beet producers' price, although at a tremendous loss to themselves, since it meant that they would sell their refined product at about what the raws had cost them, allowing a net margin of only about 1.30 cents per pound after trade discounts have been deducted. This figure was arrived at by taking the average margin for five years previous to and including 1914 and adding the increased cost of operation which refiners must now face. For example, in refining sugar there is a loss in weight of about 7 pounds on every hundred, and as raw sugar is expected to cost, in round figures, about 2 cents per pound more than in the five-year pre-war period, this alone amounts to an increased cost of 14 cents per hundred pounds. Bags, jute and cotton have increased in price about 15 cents per hundred; coal, 5 cents; labor, 8 cents; bone black, 2 cents. These increases added to the old pre-war basis bring the figure up to 1.281 cents, so that in selling on a margin of 1.30 cents net only 0.019 cent per pound has been left to cover the increased cost of lighterage and cartage, materials, insurance and interest. Of course this small fraction will not cover these increased costs, so it will be seen that, although the differential is higher than formerly, the actual net margin of profit is about the same as before the war. The advantage must come mainly through ability to run plants at full capacity for nearly the entire year, due to the large increase in export business.

Thus the country was divided into two price zones—in the western half of the country cane and beet sugar both cost 7.25, while in the east cane sugar sells on an 8.40 basis, with no competition from beet sugar. As the volume of beet sugar output increases, it will gradually reach eastward and probably about the end of November reach the Atlantic seaboard and affect the present high cane prices so that these will fall to its level and eventually the entire country will be buying sugar, both cane and beet, at the same uniform price of 7.25.

In the intermediate zone where the two prices meet, some confusion is unavoidable. The Food Administration has asked jobbers and dealers in this district to help reduce the disturbance to the lowest possible degree, at the same time urging upon the public patience and forbearance during the temporary period of adjustment.

To provide against speculation, such as the resale of western sugar, purchased at the lower price, in the east, the Administration has included sugar among the foods whose distributors can operate after November 1 only under licenses. No dealer who is proved to have taken advantage of the two-price zones is likely to obtain a license. The rules and regulations governing sugar licenses, as announced by the Administration, require reports to be submitted to the Administration, upon request, as to supplies received, sales made, and prices charged. Special regulations for the beet sugar industry provide that all carload shipments of beet sugar by producers shall be in lots of not less than 60,000 pounds each, unless a different minimum is authorized by the Food Administrator or unless the maximum capacity of the car is under the amount fixed.

They also provide that no producer shall sell to any person required to have a license unless such license has been obtained; that no producer shall sell to any person not a wholesale or retail dealer in sugar, a manufacturer using sugar in his business, or a consumer of sugar; that no producer shall make or have outstanding contracts for sale requiring shipments farther ahead than ten days, except contracts with the Federal, or state and county government; that no producer shall sell or deliver sugar to any person when he knows that the sale will give such person a supply of sugar in excess of his requirements for thirty days, except that manufacturers may purchase sugar up to the customary requirements of their business; that no producer dealing through brokers shall pay a commission in excess of 5 cents per hundred pounds, except with the approval of the Food Administrator, and that no producer shall pay or allow any commission or brokerage on sugar on which a commission or brokerage has already been paid.

Every producer is required to furnish to the Food Administration and to the trade a price list showing the seaboard base price, cane basis and differentials. After such a price list is issued the producer cannot make sales except at the terms shown until a new list is issued. Molasses and syrups are to be sold according to the customs of the trade in the various producing centers.

Other methods of helping the situation are being devised by the Food Administration. Confectioners have been limited until January 1 to 50 per cent of their normal supplies of sugar. Economies of every description have been suggested: the increased use of corn syrup (commercial glucose), maple sugar, and invert sugar (refiners' syrup) in candies; honey, molasses, syrups, invert sugar for soda fountain purposes: and the use of commercial candy containing glucose, an excellent and extremely wholesome substitute for sugar, which housewives have not yet learned to use.

In the meantime the Administration is continuing its attempts to reach the desired agreement with the Cuban planters. In a recent statement the Administration says that it hopes a price will be arranged with the companies which are controlled by American capital, somewhere about 4.50 cents a pound, which will make the refined price in this country about 7.25 cents a pound, New York basis. With the co-operation of these big companies, and with all sugar for the United States and its Allies being purchased through the central committees of the Sugar Bureau, it is expected that the smaller Cuban planters will see the necessity of selling at the agreed price in order to dispose of their sugar at all.

The Cuban government is doing everything in its power to facilitate matters. Cuban holders of raw sugar have been urged by Cuban officials to make early shipments at a reasonable price, being notified that should they be disinclined to do so, the Cuban government "will commandeer their sugar, paying for it on an equitable basis and offering it to the American government for the relief of the situation in the United States and France."

At the suggestion of the United States Food Administration, the Cuban government has loaned to the Cuban Railway $5,000,000 with which to place its road in better condition to properly handle the coming crop.

One of the principal difficulties has been to obtain jute bags for the crop beginning to come in about December 15, and this question was finally taken up with the British government, with the result that the bags are to be sent from India to Cuba. The necessary shipping will be furnished by the British admiralty.

Various estimations have been made of the size of the 1917-18 sugar crop. One of these is as follows:

	Tons.
Western beet sugar	875,000
Cuban cane sugar	3,200,000
Porto Rican cane sugar	475,000
Louisiana cane sugar	275,000
Hawaiian cane sugar	525,000

The estimate is to the effect that even making liberal allowances for a consumption of 4,000,000 tons by the United States, there are indications that there will be a balance for the supply of the Allies of 1,365,000 tons, which compares with 1,055,000 tons shipped to England, France, Belgium and Italy during the current year.

It is indeed a fact, and a most encouraging one, that the world's sugar crops in general seem to be promising. Cuba's crop is reported to be about 3,000,000 tons, a crop equal to that of last year, and 400,000 tons greater than in any previous year.

The latest reports from France are to the effect that in French territory recently evacuated by the Germans there are more than 40 sugar factories, not including those that are too near the front to make their operation possible. The repair and the resumption of productive operations in these works is, of course, tied up with the question of the possibility of cultivating the soil in the vicinity and of raising a sufficient crop of sugar beets. It is reported that although in most places it will take much labor and much help from other countries in the way of equipment to make the soil fit for cultivation, there are some regions where this is not true.

Our own temporary shortage in the eastern states will soon be remedied by the new incoming crops. The American Sugar Refining Company has recently purchased 200,000,000 pounds of Louisiana sugar, 15 per cent of this to be delivered by November 15. Shipping has been engaged through the efforts of the transportation division of the Food Administration for the transport of one half of this sugar to the Philadelphia, Boston and New York refineries. The Louisiana producers have expressed their satisfaction at the terms settled upon. The prices will enable the refiners to sell sugar at a steadily reduced price, starting from 8.35 cents per pound, eastern seaboard, and falling to 7.25 cents about the end of the year.

The retail price of sugar is giving the Food Administration much concern. The prices from the manufacturers are fixed and the wholesalers will come under license on November 1. Refiners and distributers of sugar are being given instructions not to supply retailers who are charging exorbitant prices.

Organization is being perfected by which the wholesale price of sugar in each city will be furnished to the Federal Food Administrators in the various states and they will be asked to communicate to the public these sugar prices, and to report to Washington any exorbitant prices by retailers.

Canadian Government Takes Fishing Rights.

When it became apparent to the Food Controller of Canada that the cost of living could be cheapened by transporting the cheap fish of the Atlantic seaboard, which were going to United States markets, inland to Ontario, the thing was done instanter. A deputy controller was appointed who bought fish and shipped them inland in car lots to Toronto and other Ontario points, where they were sold to retailers at 7½ cents a pound with the proviso that the price to the consumer be 10 cents a pound.

Concurrently the public was made acquainted with this new method of distribution by means of advertising. A fish day was celebrated and the public was encouraged to eat fish on Tuesdays and Fridays—the meatless days. And it is being done. But when the public began to consume ever-increasing quantities, the Food Controller was hard put to it to keep up with the demand, and it was not many weeks before the fishermen began to advance prices till it was no longer possible to sell at 10 cents retail.

Then the Ontario government stepped in and took over the fishing rights in the great inland lakes of Nipigon and Nipissing and is now shipping these fish caught in government-owned waters direct to the metropolitan markets. The government is a producer. It is in direct competition with private concerns. Furthermore, it is intimated that it is not at all unlikely that the government may take over all fishing in inland waters and operate such fisheries for the public, selling to the consumer at cost. At present, however, the fish trade is being recognized and employed in the distribution wherever practical. And the price is 10 cents in Toronto and 11 cents outside.

The government is not aiming to satisfy any one center fully, but rather to keep down the price by distributing cheap fish over wide areas and thus force private interests to lower prices. It will pay two-thirds of all transportation charges on fresh, frozen and smoked fish, excepting halibut and gray fish shipped from points in British Columbia to points in Alberta, Saskatchewan and Manitoba.

Dehydration a Factor in Conservation

By J. E. Bolling, M. E.,
Chief Engineer of Drying Systems, Inc., Chicago, Ill.

AMERICA now faces the most stupendous food problem in history. She must supply not only herself and her soldiers in service, but she must provide for her impoverished Allies. When the fortunes of war began to render this fact apparent, there developed a stirring and powerful interest in new and efficient methods of food conservation. An appalling scarcity of tin, foreseen early in the war, made it impossible to preserve our perishable foodstuffs by the ordinary method of canning. Public interest immediately focused upon dehydration, the possibilities of which are so remarkable as to be almost spectacular.

Technical papers and trade journals published carefully prepared and well illustrated articles describing various dehydrating processes. The public prints, following the trend of public interest, hailed dehydration as a new and wonderful process offering a simple solution of the many difficulties incident to the preservation and transportation of the world's food supply.

So much has been said and written about this that but a brief analysis is necessary here. Preservation of fruits and vegetables by a process of dessication was practiced by the ancient Egyptians. The French have known and used for many decades what they familiarly call "Julienne Vegetables." At the outbreak of the war, Germany had more than 400 dehydrating plants in active operation, and there is reliable information to the effect that this number has been increased to approximately 2,000. Nor is dehydration a new idea in this country. The process used by Drying Systems, Inc., was conceived more than ten years ago and during the last eight years constant and careful experimentation has been carried on for the purpose of perfecting the process and developing mechanical equipment which would render it practicable on a large commercial scale.

The countrywide interest has brought forth a great number of processes and machines, many of them sprung up, like mushrooms, over night. A brief discussion is therefore in point of the various factors which render dehydration an efficient and practical permanent institution for the conservation of the nation's foodstuffs.

There are many ways and means of dehydrating fruits and vegetables, and it is difficult for the hurried investigator to weed out from the many offerings the really efficient and practical process. The system developed by Drying Systems, Inc., possesses certain distinctive features worthy of careful consideration. The first impression of the process is that it is simple and natural. The fruits or vegetables, after being mechanically pared and sliced, are subjected to a gentle, pulsating current of heated air. Nearly all dehydration employs currents of heated air, but this system is distinctive in that the currents are made to pulsate, or vary in intensity, by means of mechanically-operated oscillating dampers. Scientists contend that such a step is of paramount importance in the drying process. The machine is so arranged that heated air is recirculated automatically, mixed with a volume of washed fresh air sufficient to maintain the proper saturation. The mechanical equipment is entirely automatic and therefore the system can be operated satisfactorily by inexperienced persons.

The development and sale of this equipment has been undertaken under license by the originators of the process. Products thus prepared are recognized and used both in this country and abroad. It is interesting to note here that Drying Systems, Inc., have specialized for many years in the development of drying equipments for various industrial purposes, and the experience of their engineers has been added to that of the originators in the final refinement of the system.

Contrary to popular belief, dehydration is not a war measure merely. The process offers remarkable possibilities for preparation and marketing of perishable foods for home consumption under normal conditions. Dehydrated products occupy from 50 to 80 per cent less space, weigh from 60 to 90 per cent less than the natural products, and, when properly prepared, are reasonably imperishable. These factors will revolutionize marketing. Besides avoiding the danger of waste by decay, and lowering costs of transportation and storage, a dehydrated product attracts the purchaser because it is ready for use without any labor of preparation.

One of the most immediate and interesting applications of this system is conservation of waste foods from large city markets. In New York City, for instance, there is a law compelling the embargo of food of which a certain percentage is bad. Sometimes 80 per cent is perfectly good, but with the high cost of labor it does not pay the commission merchants to attempt sorting the cargo, and therefore the entire lot is thrown on the dump. Comparatively small installations of dehydrating machinery would conserve this enormous waste and tend to lower and steady market prices. They might be profitably undertaken municipally or through private organizations. The writer will be glad to answer any inquiries in this connection.

Mention has been made of only one application of the process. The industry is certain to grow into tremendous proportions. It is entirely feasible to install smaller equipment in individual farming communities, in order to preserve the community's perishable products, either for sale or for later home use. Large institutions, hotels, asylums, hospitals and homes, by installing their own dehydrating equipment, can equalize the cost of their food supplies by purchasing in season, at the consequent low market, and storing them for winter use.

This system of dehydration does not impair the form, quality, palatableness or nutritive value of the food. It is difficult to distinguish the dehydrated vegetable or fruit, prepared for the table, from the fresh green vegetable, or the natural ripened fruit. It is extremely interesting to note that the dehydrated product, prepared and dehydrated the same day that it is taken from the fields, has thus a great advantage over the marketed food, which must be packed and shipped for sale many days after it has been gathered.

A Study of Puget Sound Oysters

By Edith F. Hindman and Forest J. Goodrich

THE oyster industry in the state of Washington has become developed to such an extent that it furnishes the people, particularly in the Pacific Northwest, with an important article of food. It is therefore evident that a careful guarding of the sanitary conditions surrounding the industry is necessary in order to insure the public a clean, wholesome food. So far as can be learned, no investigation has been carried on from a chemical and bacteriological standpoint on the native Puget Sound oyster.

The principle purpose of the study of oysters from Puget Sound beds at this time is to ascertain; first, the condition of the oyster as the consumer receives it; second, the multiplication of the total number of bacteria and colon bacilli after the oyster is removed from the shell and distributed to retailers; third, bacterial count from time to time while in cold storage; and lastly, the chemical analyses from time to time of oysters and their juice from the same location in the Puget Sound territory.

The geographical location of the beds on the Puget Sound makes this industry a very important one to the people of the Pacific Northwest. The beds are not located near any large cities which would in any way necessitate their becoming contaminated by the disposition of city sewage. Although oysters are grown off the coast of Oregon and California, the most productive regions are in Washington. One of the oldest sections of importance is in the Willapa Harbor, situated in the southwest part of Washington. These beds and others about Puget Sound at an early date were approaching depletion, when the growers realized that the beds must be restocked in order to carry on the industry. There are hundreds of acres of oyster land in the state of Washington, much of it being in an undeveloped condition, but will eventually make valuable oyster beds. The greater portions are located in Oyster Bay, Mud Bay, the district about Shelton, Willapa Harbor, Hoods Canal and a district about Bellingham.

The most extensive and productive beds about Puget Sound are located in Oyster Bay in the vicinity of Olympia. A portion of the oyster fields are protected with concrete dykes in order to insure the oysters from freezing, to make their food supply more constant and to protect them from their water enemies. The largest area protected by a single concrete dyke consists of about thirteen acres of oyster land. On the other hand, very little attention has been given to improving the beds about Bellingham and in Gray's Harbor. It will be a slow and expensive task to restore them to their full productive capacity.

The immense value of the Puget Sound oyster, particularly to the Pacific Northwest, as a food, has brought to the growers a realization that the greatest of precautions must be taken to guard the industry in this part of the country. The early natives and settlers took for granted that the supply could not be exhausted, and after almost depleting the beds, they came to a realization of the fact that scientific methods must be used if the industry was to continue to thrive in this section of the country. The eastern oysters have been transplanted, and after considerable experimenting, have proved to be well adapted for this section.

Puget Sound is especially well suited in many respects for the culture of oysters. The water is fairly warm and the climatic changes throughout the year do not vary over as wide a range in temperature as is found in some other oyster sections of the country. The starfish are among the enemies of the oyster, but they are not a serious factor in this section, and are easily kept under control. Ducks feed upon the young oysters to a certain extent, but this again is not a serious factor.

The oysters are collected from the beds with rakes at low tide and are loaded upon floats. They are then sorted, the small ones put back into the water, and the marketable ones loaded on boats and taken to the shiping plant for opening. Japanese men and women are usually employed to remove the oyster and liquor from the shell. They become very skilled at this work and are able to handle many more than the less experienced shucker. An opener can remove from the shell from two to three quarts per hour, and is paid according to the amount shucked. Of course, it is possible to shuck a much larger quantity of the large eastern variety. The oysters are collected either in pans, permitting the draining of the shell liquor, or in pans partially filled with cold water and then drained. They are then chilled in ice water for about thirty minutes and again drained and shipped either in sealed cans or in bulk to the different markets. No preservatives are added, as they are intended for immediate consumption.

The shells of the fully matured often have young oysters growing on the outside of them, and these, after the full grown oyster is removed, are taken back to the beds and again planted. After shucking the oysters, most of the shells are returned to the beds and distributed in order to give the young spat a better chance to combat the innumerable difficulties to which they are subjected.

The Food and Drugs Act of 1906 made it unlawful to ship or sell interstate commerce oysters or other shell fish taken from polluted beds, or oysters which have become polluted because of being packed under insanitary conditions, or placed in unclean receptacles, or shucked oysters to which water had been added, either directly or in the form of melted ice. Food Inspection Decision No. 121, issued June 14, 1910, says: "Oysters found in interstate commerce in a polluted condition because of the character in which they are grown or floated are adulterated under the Food and Drugs Act." In 1910, at this time, the Bureau of Chemistry made use of the standard that if three out of five oysters examined showed colon bacilli in one-tenth of a cubic centimeter they should be condemned. Since that time the beds in the Atlantic waters have been closely guarded and an accurate supervision has been constantly kept on the sanitary conditions surrounding them.

Professor Corham of Brown University in a paper on "The Sanitary Regulations of the Oyster Industry" has made a sharp distinction between polluted or dangerously infected oysters, and those which are merely dirty but not affected by sewage organisms. Oysters taken from sewage polluted water may contain the organisms present in sewage, and cases are on record

Results of Bacteriological Examination of Oyster Liquor Taken from the Shell of the Puget Sound Oyster, Opened Under Aseptic Conditions, and Samples Collected from Miscellaneous Sources.

TABLE NO. 1.

		Organisms developed within 48 hours. Plain Agar		Lactose	Litmus Agar	Lactose Fermentation Tubes. Juice from 3 out of 5 oysters showing gas in		
No.	Source.	37° C.	25° C.	Dil.	Red Colonies.	1.0 cc.	0.1 cc.	0.01 cc.
1.	W & R Market*.	320	850	0.1 cc.	+	+	—	—
2.	W & R Market..	500	2,500	0.1 cc.	—	—	—	—
3.	W & R Market..	4,200	8,000	0.1 cc.	+	+	—	—
4.	Restaurant	2,100	6,000	0.1 cc.	+	+	—	—
5.	W & R Market..	12,000	85,000	0.1 cc.	+	—	—	—
6.	W & R Market..	300	375	0.1 cc.	—	—	—	—
7.	W & R Market..	5,000	9,000	0.1 cc.	+	+	—	—
8.	W & R Market..	1,000	11,000	0.1 cc.	+	+	—	—
9.	Restaurant	450	900	0.1 cc.	+	—	—	—
10.	Restaurant	1,800	4,000	0.1 cc.	+	+	+	—
11.	Meat Market ..	350	1,100	0.1 cc.	—	—	—	—
12.	W & R Market..	1,100	2,500	0.1 cc.	+	+	—	—
13.	W & R Market..	95	400	0.1 cc.	—	—	—	—
14.	W & R Market..	300	750	0.1 cc.	—	+	—	—
15.	Restaurant	1,750	2,400	0.1 cc.	+	+	+	—
16.	Restaurant	900	2,100	0.1 cc.	+	+	—	—
17.	Restaurant	350	1,300	0.1 cc.	+	+	—	—
18.	W & R Market..	1,000	4,000	0.1 cc.	+	+	+	—
19.	W & R Market..	750	1,300	0.1 cc.	+	—	—	—
20.	W & R Market..	500	2,000	0.1 cc.	+	+	—	—
21.	W & R Market..	1,500	5,500	0.1 cc.	+	—	—	—
22.	W & R Market..	600	1,250	0.1 cc.	—	+	—	—
23.	Meat Market ..	350	1,400	0.1 cc.	+	+	—	—
24.	Meat Market ..	700	1,200	0.1 cc.	—	+	—	—
25.	Meat Market ..	1,250	4,800	0.1 cc.	+	+	—	—

*W & R Market is Wholesale and Retail Market.

Results of Bacteriological Examination of Oyster Liquor Taken from the Shell of the Eastern Oyster, Opened Under Aseptic Conditions, Samples Collected from Miscellaneous Sources.

TABLE NO. 2.

		Colonies developed within 48 hours. Plain Agar		Lactose	Litmus Agar	Lactose Fermentation Tubes. Juice from 3 out of 5 oysters showing gas in		
No.	Source.	37° C.	25° C.	Dil.	Red Colonies.	1.0 cc.	0.1 cc.	0.01 cc.
1.	Public Market..	600	900	0.1 cc.	+	+	—	—
2.	Restaurant	900	1,750	0.1 cc.	+	+	—	—
3.	Restaurant	900	2,500	0.1 cc.	+	—	—	—
4.	W & R Market*.	1,400	3,000	0.1 cc.	+	+	—	—
5.	W & R Market..	500	1,500	0.1 cc.	—	+	—	—
6.	W & R Market..	1,275	3,250	0.1 cc.	+	+	—	—
7.	W & R Market..	475	800	0.1 cc.	—	—	—	—
8.	W & R Market..	2,400	4,000	0.1 cc.	+	+	—	—
9.	Meat Market ..	225	950	0.1 cc.	+	—	—	—
10.	Meat Market ..	625	1,000	0.1 cc.	+	—	—	—
11.	Restaurant	3,500	9,000	0.1 cc.	+	+	+	+
12.	Public Market..	1,100	1,100	0.1 cc.	+	+	—	—
13.	W & R Market.	750	1,600	0.1 cc.	—	+	—	—
14.	W & R Market.	1,200	1,500	0.1 cc.	+	+	+	—
15.	Fish Market ...	200	475	0.1 cc.	—	+	—	—
16.	Fish Market ...	350	550	0.1 cc.	+	+	—	—
17.	W & R Market.	800	1,900	0.1 cc.	+	+	—	—
18.	W & R Market.	185	325	0.1 cc.	+	—	—	—
19.	Meat Market ..	1,800	4,000	0.1 cc.	+	+	+	—
20.	Meat Market ..	725	1,400	0.1 cc.	—	—	+	—
21.	Meat Market ..	1,600	2,200	0.1 cc.	+	+	—	—
22.	Fish Market ...	950	1,800	0.1 cc.	+	+	—	—
23.	W & R Market.	1,000	2,400	0.1 cc.	+	+	—	—

*W & R Market is Wholesale and Retail Market.

where typhoid fever epidemics have been the results of eating raw, contaminated oysters. The presence of coli in the oyster does not make it conclusive that the oyster has been directly contaminated from sewage. In the summer months the number of B. coli and the total number of bacteria are considerably higher than in the winter months. However, oysters taken from beds located near sewage polluted areas would be danerous regardless of bacterial counts.

If the oysterman receives the oysters in a clean and sanitary condition at his oyster opening plant, the responsibility of distributing a clean product should rest upon him. There are several factors which must be considered in order to turn out such a product. If the opening house is in an insanitary condition, it is impossible to keep the oysters in a high state of purity. Certain instances are cited where the ceilings and walls were covered with cobwebs, dirt and filth, and serve as a harbor for bacteria and insects. If this part of the building had been kept thoroughly clean, one of the chief sources of contamination would have been removed.

Containers in which the oysters are placed after being opened should be sterile. The oyster should be washed with pure cold water to remove as much as possible of the mucous from the oyster and thereby greatly decrease the bacterial content. The careful guarding of the water supply, cleanliness and healthfulness of the employes, and the unlimited use of steam and hot water for sterilization are other factors which will enormously decrease the bacterial counts.

Oysters as a food parallel milk quite strikingly. Both are raw foods and are consumed usually with but very little cooking. Bacterial growth multiplies rapidly in both. With all the precautions which are taken to produce a clean, safe milk, and keep the bacterial counts to a minimum, it would seem that at least a portion of these precautions should be observed in order to put oysters on the market which are above suspicion.

Since the oyster beds in Puget Sound are not seriously menaced by sewage pollution and the bacterial content of the originally unopened oysters are relatively low, the chief source of contamination undoubtedly takes place after they leave the oyster bed, and appear to be; first, insanitary shucking houses; secondly, unclean and improper methods of handling, packing and shipping. The precautions to be observed in keeping the oyster opening house in a clean and sanitary manner have been discussed before. Many of the smaller opening houses have a disagreeable odor and have no equipment for carrying on such a business in a sanitary manner. Frequently they have no means of washing out the building with a stream of either hot or cold water.

The great increase of bacteria after the oyster has been taken from the shell, indicates that the greatest care should be exercised in shucking, and that only containers which are thoroughly cleaned should be used in receiving the oysters after being shucked. Such methods as scooping the washed oysters into the container by putting the hand into the oysters and liquor is inexcusable and should not be allowed.

Samples of shucked eastern oysters and Puget Sound oysters and samples of shell eastern oysters and shell Puget Sound oysters were collected at varying intervals of time. The shucked oysters were collected in sterile, four ounce, wide mouth bottles with sterile fiber corks and protected with aluminum caps. From five to ten samples were collected at a time from different sources, such as wholesale and retail oyster markets, meat markets, public markets, restaurants and fish markets. As far as possible the dealer's method of handling them, the sanitary condition of the surroundings, and the beds from which the oysters were collected was ascertained. In the analyses of the opened stock only the liquor was used instead of both meat and liquor, as the juice represents sufficiently well the character of both juice and meat as to bacterial content. As far as possible the samples were kept at refrigerator temperature from the time of collecting to the time of plating and this was usually three to four hours.

Results of Bacteriological Examination of Shucked, Olympia, Puget Sound, Market Oysters, Collected at Different Intervals.

TABLE NO. 3.

No.	Source.	Organisms developed after 48 hours. Plain Agar 37° C.	Plain Agar 25° C.	Lactose Dil.	Litmus Agar Red Colonies.	Lactose Fermentation Tubes. Juice from 3 out of 5 oysters showing gas in 1.0 cc.	0.1 cc.	0.01 cc.
1.	W & R Market*	4,500,000	6,000,000	0.1 cc.	+	+	+	+
2.	Meat Market	2,400	11,000	0.1 cc.	—	—	—	—
3.	W & R Market	550,000	1,900,000	0.1 cc.	+	+	+	+
4.	W & R Market	180,000	400,000	0.1 cc.	+	+	—	—
5.	Meat Market	102,000	600,900	0.1 cc.	+	+	+	+
6.	Meat Market	185,000	1,000,000	0.1 cc.	+	+	—	—
7.	W & R Market	2,500,000	3,000,000	0.1 cc.	+	+	+	+
8.	W & R Market	4,000,000	9,000,000	0.1 cc.	+	+	+	+
9.	Meat Market	900,000	1,220,000	0.1 cc.	+	+	+	+
10.	Meat Market	1,100,000	2,600,000	0.1 cc.	+	+	+	+
11.	Fish Market	950,000	2,800,000	0.1 cc.	+	+	+	+
12.	W & R Market	no count	800,000	0.1 cc.	+	+	+	+
13.	W & R Market	1,600,000	2,220,000	0.1 cc.	+	+	+	+
14.	Meat Market	110,000	700,000	0.1 cc.	—	+	+	+
15.	Meat Market	24,000	300,000	0.1 cc.	+	+	—	—
16.	W & R Market	180,000	no count	0.1 cc.	+	+	—	—
17.	Fish Market	200,000	800,000	0.1 cc.	+	+	+	+
18.	W & R Market	1,600,000	2,800,000	0.1 cc.	+	+	+	+
19.	Meat Market	1,500,000	no count	0.1 cc.	+	+	+	+
20.	Opening house	39,000	110,000	0.1 cc.	+	+	+	—
21.	Opening house	50,000	210,000	0.1 cc.	—	—	+	+
22.	Opening house	110,000	300,900	0.1 cc.	+	+	+	+
23.	Opening house	115 000	260,000	0.1 cc.	+	+	+	+
24.	Opening house	15,000	120,000	0.1 cc.	+	+	—	—
25.	Meat Market	56,000	300,000	0.1 cc.	+	+	+	+

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*W & R Market is Wholesale and Retail Market.

Results of Bacteriological Examination of Oyster Liquor from Shucked Stock of Eastern Oysters, Collected from Miscellaneous Sources.

TABLE NO. 4.

No.	Source.	Organisms developed within 48 hours. Plain Agar 37° C.	Plain Agar 25° C.	Lactose Dil.	Litmus Agar Red Colonies.	Lactose Fermentation Tubes. Juice from 3 out of 5 oysters showing gas in 1.0 cc.	0.1 cc.	0.01 cc.
1.	Meat Market	300,000	800,000	0.1 cc.	+	+	+	+
2.	Meat Market	60,000	200,000	0.1 cc.	+	+	+	+
3.	Meat Market	72,000	180,000	0.1 cc.	+	+	—	—
4.	Restaurant	400,000	600,000	0.1 cc.	+	+	+	+
5.	Restaurant	1,500,000	4,000,000	0.1 cc.	+	+	+	+
6.	Restaurant	1,200	1,200	0.1 cc.	—	—	—	—
7.	Restaurant	100,000	250,000	0.1 cc.	+	+	+	+
8.	Meat Market	1,175,000	2,500,000	0.1 cc.	+	+	+	+
9.	Meat Market	800,000	800,000	0.1 cc.	+	+	+	+
10.	Fish Market	120,000	100,000	0.1 cc.	+	+	—	—
11.	Meat Market	180,000	175,000	0.1 cc.	+	+	+	+
12.	Restaurant	200,000	450,000	0.1 cc.	—	+	+	—
13.	Restaurant	70,000	175,000	0.1 cc.	+	+	+	+
14.	Restaurant	1,000,000	275,000	0.1 cc.	+	+	+	+
15.	Meat Market	1,140,000	2,100,000	0.1 cc.	+	+	+	+
16.	Meat Market	100,000	750,000	0.1 cc.	—	+	+	+
17.	Meat Market	3,150,000	4,400,000	0.1 cc.	+	+	+	+
18.	Meat Market	65,000	125,000	0.1 cc.	+	+	+	—
19.	Meat Market	100,000	500,000	0.1 cc.	+	+	+	+
20.	Meat Market	200,000	450,000	0.1 cc.	+	+	+	+
21.	Meat Market	50,000	175,000	0.1 cc.	+	+	—	—
22.	Restaurant	1,000,000	1 800,000	0.1 cc.	+	+	+	+

Results of Chemical Analysis of the Eastern and the Puget Sound Oysters.

TABLE NO. 5.

No.	Variety.	Water %	% of shell in the whole oyster.	Percentage composition of the dried sample. Protein.	Fat.	Ash.	Carbohydrates.
1.	Eastern	86.3	70.4	7.4	1.4	1.7	3.2
2.	Eastern	85.1	69.3	7.0	1.7	2.44	3.7
3.	Puget Sound	83.26	61.2	7.67	2.23	2.27	4.5
4.	Eastern	86.24	68.5	7.11	1.46	2.03	3.0
5.	Puget Sound	85.48	59.8	7.85	1.56	2.13	3.1
6.	Eastern	86.1	64.9	7.61	1.34	1.91	2.9
7.	Puget Sound	85.9	63.3	7.82	1.31	1.88	3.0
8.	Eastern	83.7	71.5	7.71	2.19	2.56	3.7
9.	Eastern	86.00	69.9	7.59	1.56	1.51	3.3
10.	Puget Sound	84.62	62.7	7.71	1.81	1.99	3.7
11.	Puget Sound	87.21	60.8	6.84	1.29	2.07	2.5
12.	Eastern	85.79	66.6	7.4	1.72	2.18	2.9

The outside of the oyster shells were washed with a scrub brush in cold running water, and then thoroughly washed and rinsed with sterile water. Before cleaning the shells, the hands of the operator were washed with soap and water and then rinsed with corrosive sublimate solution of the strength of one to seven hundred and fifty and finally with sterile water. From eight to twelve oysters were opened for each experiment. The whole oysters were laid upon a sterile towel and opened in such a manner as to minimize the loss of juice. The liquor was poured into sterile flasks.

The media used for obtaining total counts and growths was plain agar, one per cent. acidity; lactose litmus agar; lactose bullion; lactose bile; and gelatin. The gelatin did not prove satisfactory for 20 degrees centigrade incubation due to the fact that so many liquifying organisms were present. The media used in differentiating the colon form of organisms from the other organisms was: agar slopes, plain bouillon, alkaline litmus milk, lactose bouillon, gelatin, peptone solution and bile salt agar.

Different presumptive tests were carried out for the presence or absence of the colon type organism. The lactose litmus agar and the bile salt agar media were plated with varying amounts of the juice; in most cases with one-tenth and one-hundredth cubic centimeter of the juice from the shucked stock or one cubic centimeter from the shell stock. Fermentation tubes were inoculated with one cubic centimeter, one-tenth cubic centimeter and one-hundredth cubic centimeter of the liquid. Duplicate plain agar plates and gelatin plates were made in most instances with a dilution of one-thousandth and one ten-thousandth cubic centimeter, but occasionally as high as one hundred-thousandth cubic centimeter of the shucked stock. With the shell stock no dilutions were made above one-thousandth and seldom that high. The gelatin plates were incubated a 25° centigrade but the other media were incubated at 25° centigrade and 37° centigrade. In making the dilutions a one per cent. sterile sodium chloride solution was used in order to approach the salinity of the oyster liquid.

At the end of the incubation periods total counts were made of the different plain agar plates, and when possible of the gelatin plates. The number of fermentation tubes with the different dilutions containing gas were recorded. The presumptive colon bacilli colonies from the bile salt agar and from the lactose litmus agar were then inoculated into the lactose bile fermentation tubes. They were also grown on plain agar slants, in beef bouillon, lactose bouillon, alkaline litmus milk and gelatin and all incubated at 37° centigrade for two days or 28° centigrade for four days with the exception of the gelatin, which was kept at 20° centigrade for fourteen days. The results after incubation were noted and recorded for about ten days to two weeks. The morphology of the bacteria was studied and the colon type bacilli whenever present positively identified. With the shell stock the greatest importance was attached to those oysters in which three out of five showed gas in lactose bouillon or lactose bile in one-tenth cubic centimeter samples.

Conclusion.

From the foregoing discussion and tabulations it will be readily seen that there is a great variation in the total bacterial counts, especially with the open stock, and that in practically every instance the counts are much higher with the opened than with the shell stock. There is no striking difference, however, in the total bacterial count between the eastern and Puget Sound oyster and no conclusion can be drawn in favor of either the large eastern variety or the smaller Puget Sound oysters, as they are found on the markets in the Pacific Northwest. It is evident that when the oysters are shucked commercially they cannot be washed and flamed according to standard conditions, and dirt, shells and grit are accidentally mixed with the oyster meats and liquor which causes contamination.

A decided increase in the colon form organisms would indicate that filthy and careless methods were employed in shucking and washing the oysters, or the containers in which they were placed were in a bad condition. Oysters may be grown on sanitary beds and remain in good condition while in the shell, but because of unclean methods of shucking and of handling they may be subsequently contaminated and rendered unfit for food. The results indicate that the increase is in the total count and that the colon-like organisms remain fairly constant.

Storing oysters at refrigerator temperatures for varying lengths of time may increase the total count but does not change the colon bacilli count to any appreciable extent.

Oysters removed from clean, well kept beds may become contaminated in the shucking house, in shipping, by allowing them to remain out of the water too long and also subjecting them to temperature changes. Oysters intended for human consumption should be grown in water free from pollution and the greatest care should be exercised to keep such a product in a clean and wholesome condition until consumed.

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Rulings on Domestic and Imported Alcohol.

The Internal Revenue Department has decided that, for technical reasons, the date on which the law taxing alcohol becomes effective, is October 4, instead of October 5, as previously announced. An additional tax of $1.10 a proof gallon is due on all alcohol held in stock on October 4, but no additional tax is required on alcohol which had already been used in finished products. The total tax on all alcohol withdrawn from bond after October 4 is $2.20 a proof gallon.

On October 11 the Flavoring Extract Manufacturers' Association was notified that the Internal Revenue Department was about to promulgate an official ruling to the effect that the tax on beverage alcohol for use in manufacturing soda water flavors would be $3.20 a proof gallon, and that distillers would not be permitted to sell non-beverage alcohol for such purposes.

The Association sent to Washington a committee consisting of representatives of its own Association and of the National Manufacturers of Soda Water Flavors, with Mr. Thomas E. Lannen, attorney, speaking for both associations. On October 13 a public hearing was granted, and, as a result, the Commissioner of Internal Revenue ruled that soda water is not a beverage within the meaning of the new revenue law and that the total tax on alcohol for making soda water flavors is $2.20 per proof gallon, instead of $3.20 per proof gallon.

Instructions to all customs collectors throughout the country to admit to entry distilled spirits produced abroad before October 3 "either for beverage purposes or for other than beverage purposes," were made public on October 21 and recalled within the space of 48 hours by the Treasury Department.

The issuance of the instructions was based upon an interpretation of the food and revenue laws given by the solicitor of the Treasury Department, who ruled that the revenue law approved October 3 re-enacted the food control law, which flatly prohibited the importation of distilled spirits.

That section of the food law passed August 10, after prohibiting the manufacture of distilled beverages in this country, says, "Nor shall there be imported into the United States any distilled spirits."

Section 301 of the revenue law, passed nearly two months later, provides: "That no distilled spirits produced after the passage of this act shall be imported into the United States from any foreign country or from the West Indian Islands, recently acquired from Denmark (unless produced from products the growth of such island, and not then into any State or Territory or district of the United States in which the manufacture or sale of intoxicating liquor is prohibited) or from Porto Rico or the Philippine Islands."

The solicitor for the Treasury Department held that the words "produced after the passage of this act" in the revenue law in effect permitted the admission to entry of spirits distilled prior to the enactment of the act. Therefore instructions were addressed to all collectors directing them to permit the importation of distilled spirits produced abroad prior to October 3rd.

These instructions were recalled upon high officials of the department taking the stand that the question was one of such magnitude that the Attorney General should pass upon it. How far the instructions had already been acted upon, however, has not been announced.

Food Control Regulations Issued.

Regulations for governing the handling of foods were issued November 3 by the President, to take effect at once, in connection with the license system.

An important rule provides that no licensee shall "import, manufacture, store, distribute, sell, or otherwise handle any food commodities on an unjust, exorbitant, unreasonable, discriminatory or unfair commission, profit or storage charge."

With respect to a large group of commodities, particularly non-perishables, the regulations require that profits shall be no greater than a reasonable advance over the actual purchase price of the particular goods without regard to the market or replacement value.

Resales within the trade without reasonable justification, especially if tending to result in higher market prices, will be dealt with as unfair practices.

Another rule reads: "The licensee shall not knowingly commit, waste, or wilfully permit preventable deterioration in connection with the production, importation, manufacture, storage, distribution or sale of any food commodities."

The storage or control by a licensee, by contract or otherwise, of food commodities in a quantity in excess of the reasonable requirements of his business for use or sale by him during the period of sixty days is prohibited.

The Cost of Marketing Eggs in 1917*

By Paul Mandeville

THE writer endeavors to make the simplest statement that will at the same time give a correct view to one outside the egg trade. A perfectly simple table of costs cannot be made, for reasons mentioned in the Foreword. While the subject is before the public, members of the trade are sometimes asked for facts that are common knowledge within the trade and an orderly arrangement of these may prove convenient also for reference.

Foreword.

It is the general belief of experienced men in the egg business that reasonable economy of operation has been attained. The trade have on the whole been open to new ideas, and few lines have attracted so many experimental movements as the egg business. If practice in this line may be found backward compared with other lines of merchandising, it is due rather to a lack of standards in operation and to some extent also to a lack of standards in equipment and supplies, than to any backwardness in trying out new ideas.

The distributor of eggs who is strong enough to control his own retail outlets and who receives direct regular shipments from country storekeepers probably has as direct and economical a method of operation as can be devised for eggs. Egg preparations are not commonly sold for household use and marketing eggs in the shell is a merchandising operation.

The large number of factors making up the total cost of handling eggs suggest that short cuts would be profitable. Many are tried every year and in the spring such plans are successful to the point of cutting out most of the distributors' profits. But for eight months, from June to February, experience and facilities seem to count for more.

The class of so-called *pure speculators* are for the most part keen observers of the market and serve a useful end in their way; taken as a class, their profits are largely offset by their losses and their expenses are small compared to the value of a season's crop of eggs. There has been and is a lack of accurate crop information available to the rank and file of the trade. Comprehensive aid in this direction by the Government would lessen the speculative risk and in the same degree would lessen speculative losses, which must now be counted as an expense on the business.

The cost of assembling and distributing eggs cannot be reduced to a table which is applicable to the whole country; it is a local problem everywhere. There are common factors in the cost of getting eggs to consumers in the larger markets, which may be tabulated, but these costs vary according to the volume of business running, the season of the year wherein it affects the cost of grading, the distance from market, and climatic hazards. At some seasons the losses due to climatic hazards are almost negligible, and costs, likewise quotations, can be reduced to variations of one-quarter cent per dozen. At other seasons the climatic element is the foremost factor in the cost.

The factors of cost mentioned herein are not so many middlemen. Two or more operations are usually conducted by one operator and the several functions overlap in practice.

FACTORS AND COST.

FIGURES APPLY TO ONE CASE—30 DOZEN OF EGGS.

1—Assembling.

(a) The *cost of gathering* and taking the eggs to town is still saddled on the farmer as a chore in most states and in outlying districts where the cost of collection is regarded as too high. The advantages of collection are a better average handling of the eggs, more frequent and more regular gathering. There may also be some saving in cost where farms are close together and where flocks are large. On the whole, however, collecting from the farmers as a business must be regarded as an expense justified in the higher market value of the product. The cost varies according to season and volume from 20 to 40 cents a case.

(b) The *container* consisting of cases and fillers is now, as a rule, built light and at low cost with the idea of discarding in the distributing market. The eggs may be transferred from one case to another several times, and the case accepted by the railroad as standard is capable of shipping several times without seriously impairing its carrying efficiency. Containers that are shipped to distant markets are seldom returned and have small salvage value, the cost is nearly absolute—for domestic cases 17 to 22 cents. One set of fillers and flats therefor costs 10 to 14 cents.

(c) The *first grading*, accounting to and paying of farmers varies greatly according to season and volume. When eggs are collected systematically, there is less opportunity for deception as to freshness and the custom is to receive the eggs without grading. Typical costs of receiving and paying for eggs according to grade at a town store are 15 to 30 cents per case. (Compare Sale Costs, factor 4-a).

(d) *Shipping to concentration point* is largely a factor of sale (factor 4-b) and of transportation (factor 3-a) but includes also delivery to the depot and from the depot to the packing plant about 5 cents per case.

(e) The second *grading at concentration* point may consist merely of lifting covers, recapping (new excelsior flat and new top fillers, etc.), and repacking any damaged cases, 3 to 5 cents per case. Or it may involve thorough grading, repacking for storage into several grades, candling, etc., which may represent a labor cost of 10 to 18 cents a case.

(f) *Shipping to central market* is a transportation factor usually involving only labor of loading cars, cost of dunnage, car bracing, etc., 1 to 3 cents per case, (see factor 3-b).

(g) To the above may be added in some instances *receiver's cost* at central market. Where the receiver sells to a distributor, add cartage 3 cents and handling charge 5 cents per case. The remainder of the receiver's cost is a sales factor.

2—Distributing.

(a) *Delivery to jobber* is generally effected by team or auto either direct from team track or from receiver's store. Large distributors may have their own side track. The cost of delivery to jobber is 2 to 5 cents per case.

(b) The *final grading* and cartoning may be done by the jobber or by the retailer and varies in cost according to the character of grading which has been done at the source, and to the degree of deterioration in transit, etc. At some seasons the eggs may not even be candled. Cost 5 to 25 cents per case. (Losses due to rejection in candling are considered with factors in group 5).

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*Prepared at the request of Mr. Horace C. Gardner for the U. S. Food Administration, Chicago, September, 1917.

(c) The *cartons* for a case of eggs cost 24 to 36 cents.

(d) *Delivery to the retailer* is also a sales factor (4-b), the salesman often traveling with and delivering the eggs. The cost of straight delivery in large cities in one to five case lots is 10 to 25 cents per case.

(e) *Delivery to the consumers* in dozen lots, where a regular trade has been established and the route is compact, costs 40 to 60 cents per case. Where deliveries are made with other groceries to close-up trade the cost may be reduced. See also Sales Factors (4-a).

(f) *Export cases* are seldom used at first packing. Eggs intended for export are repacked into heavier cases and fillers. Cost of export cases 30 to 40 cents, export fillers 15 to 18 cents per set (for one case). The salvage in the original container, which is discarded, is little more than the cost of sorting and marketing. The cost of grading for export is similar to "*Final Grading*" (factor 2-b).

3—Transportation.

(a) Typical freight *to concentrating point* 5 to 15 cents per case.

(b) *Freight to central market* varies widely. Typical car lot freight from a packing point in Iowa to Chicago or from Indiana to New York is 15 to 35 cents per case.

(c) Typical freight *from central market* to tributary market 5 to 15 cents per case.

NOTE.—During the winter and until the market declines to spring level it is common to ship by express which raises the cost of a, b and c two to three times.

(d) Freight to central market may be divided when eggs are *stored in transit*. One function of the warehouse is to afford an opportunity for diverting reserves late in the season to the market first to become exhausted, and in a movement of this kind eggs may be shipped back over much the same route whence they originated.

4—Sales Cost.

(a) Buying eggs direct from farmers or selling them direct to consumers *in dozen lots* are similar transactions, involving a cost from 20 cents to $1.00 per case. Cash sales on bargain days at department stores, etc., may easily be reduced to the lower figure, while personal attention required by the salesman in a high-grade neighborhood store may cost the higher figure.

(b) Purchase or sale in *case lots* costs 10 to 30 cents.

(c) Purchase or sale in *jobbing lots* (20 to 100 cases) costs 5 to 20 cents per case.

(d) Sale in *carlots* costs 3 to 10 cents per case.

The above sales costs do not include delivery and handling but represent that portion of the cost which is sometimes figured as "overhead"—getting the buyer and seller together.

5—Climatic Losses and Losses Due to Exposure and Careless Handling.

These losses are represented by price reduction due to general deterioration or to shrinkage from rejections in candling.

(a) *Climatic losses* vary in the extreme, depending not only upon the state of the weather but upon the condition of flocks and hardiness of the egg. Climatic losses are minimized in April owing to a large volume running, frequent gathering, cool weather, hardy eggs, etc. Typical losses in April from this cause 5 to 15 cents per case; typical losses in August, where eggs are not under refrigeration, 10 cents to $2.00 per case.

(b) *Losses from exposure* are usually the result of ignorance and often are not recognized, as, for example, from exposure to sunshine and heat when eggs are displayed in a store window; exposure to rain when the farmers are bringing them to market; dampness in cellars; musty odors from old fillers, etc. Losses from exposure are difficult to reckon in dollars and cents. A carload of eggs may become musty from frequent changes due to opening and closing car in hot weather, causing condensation and dampness from contact with the warm, moist outside air. When the dampness is followed by heat, a car may depreciate $2.00 to $3.00 a case in transit and while awaiting sale. Typical losses from exposure are 5 to 30 cents per case, and where eggs are properly handled and well protected, losses due to exposure approach nil.

(c) *Freezing* is another loss of this class. A frozen egg usually splits wide open and becomes a leaker. It occurs in severe weather when losses therefrom are sometimes considerable. Typical losses due to freezing are 10 to 60 cents per case.

(d) A frequent cause of depreciation is *rough handling* which results in broken shells and, what is often quite as serious, broken down contents. The content of an egg is delicately formed and has a definite structure which breaks down when roughly handled, causing the egg to become watery. Typical losses from this cause are 5 to 25 cents per case and when a shipment is badly shaken up may amount to much more.

(e) Against saving from exposure and careless handling must be placed the *cost of protection*, such as cold storage, refrigerator cars, dunnage, extra packing, preservatives, etc.

6—Storing.

(a) The larger *cold storages* charge 30 to 40 cents per case for the season ending January 1. It is customary to quote a monthly rate on eggs stored in the summer and fall for short term. The usual charge for three months is 20 cents per case. Warehouses in the South, in the West and in smaller cities sometimes charge higher rates up to 60 cents per case for season.

(b) Eggs are also *held on track* awaiting clearance on a glutted market and it is sometimes found profitable to stand a charge of $20.00 to $30.00 a car or 5 to 7 cents a case rather than to unload.

(c) *Storing eggs in liquids* is now rarely practiced commercially. At home and in small quantities it costs anywhere from 30 to 60 cents a case, according to the price which druggists charge for the liquid.

7—Market Control.

This factor of cost is most difficult of all to reduce to a figure. It consists of:

(a) *Information.* Trade papers and ordinary correspondence by mail and telegrams keep the widely scattered trade in eggs informed. Associations have recently adopted a liberal policy of collecting and disseminating information. The Bureau of Markets at Washington, D. C., has been a recent aid.

(b) There have been attempts to *regulate by law* certain abuses or assumed abuses in the business, some of which have been helpful, but nearly all of which have been the occasion of upsetting to some extent the established channels and creating new channels of trade, and this always results in an expense for the time being.

(c) Prices are controlled *by speculation*, sometimes meaning the legitimate provision in advance of requirements by established trade and sometimes meaning pure speculation. *A pure speculator* who deals in carlots, buying and selling from the regular trade adds 15 to 25 cents a case to the cost, representing the cost of assembling his line added to the cost of disposing of it. On the face of it where the same car changes hands a number of times it would appear that unnecessary expense has been added to the cost of the eggs, but an analysis of this cost is not convincing. When a car has once been inspected and its quality has become known in a central market, it is always cheaper to deal in the same car or block of cars than to inspect a new line, and as a result certain particular lines of eggs become current in the speculative trade, and the ups and downs of the market represent both profits and losses on these particular cars; meantime the bulk of the reserves in storage are held by the regular trade and do not share in this expense.

TYPICAL OPERATIONS.

FREIGHT VARIES WITH THE CLASS OF SERVICE AND THE DISTANCE FROM MARKET. IN THE FOLLOWING EXAMPLES THE FARM IS ASSUMED TO BE LOCATED IN A SMALL TOWN IN SOUTHWESTERN IOWA AND THE CONSUMER IN CHICAGO. ONLY ONE FREIGHT IS SHOWN, BEING THE COMBINATION OF RATES TO CONCENTRATING POINT AND FROM CONCENTRATING POINT TO CHICAGO. LIKEWISE COST OF GRADING, WHEREVER DONE, IS COMBINED.

1—Cost of Marketing a Case of Fresh Eggs in February.

The first run of fresh eggs in the winter appears, as a rule, on a declining market and the most important object is to get the eggs to market quickly. It is common to ship by express, to consign without previous sale and to sell out all receipts daily, getting them so far as practicable into immediate consumption. Second-hand containers are customarily used. The quality is good and candling is generally dispensed with. The only concern is to see that none of the old crop is mixed with the new. Principal losses are from freezing and breakage.

Typical costs of the various stages are:

	Per Case.
Container	$0.20
First buyer's gross profit	.10
Concentrator's gross profit	.05
Freight (if express 90c)	.44
Receiver's gross profit	.05
Sale and delivery to distributor	.08
Labor, grading	.07
Shrink in grading	.05
Cartons	.30
Wholesale distributor's gross profit	.10
Sale and delivery to retailer	.15
Retailer's gross profit	.60
Sale and delivery to customer	.60
	$2.79

2—Cost of Marketing a Case of Fresh Eggs in April.

In the spring the supply exceeds the demand and the quotation is governed by the interest shown in storing eggs. The run is so large that undergrades, not desirable for storing, are a large factor in the supply for immediate use. These undergrades consist of slightly dirty, undersize and checked (slightly cracked) eggs. The quality of all receipts is good. Daily variations in the quotation are only fractions of a cent per dozen. Country storekeepers and even farmers are shipping direct to neighborhood stores in the large cities and there is a tendency to cut out as many middlemen as possible. Eggs are featured at this season by the retailers and are often sold at cost. In all classes of the trade, profits are smaller, but the volume of business is larger.

Typical costs of the various stages are:

	Per Case.
Container	$0.30
Collection (if not collected, add 10c to first buyer and 10c labor and shrink grading. Grading is frequently omitted, however)	.20
First buyer's gross profit (see Collection)	.05
Concentrator's or receiver's gross profit	.10
Freight	.35
Sale and delivery to distributor	.07
Labor, grading (usually sold ungraded)	..
Shrink in grading (usually sold ungraded)	..
Cartons (use limited in April and May)	..
Wholesale distributor's gross profit	.05
Sale and delivery to retailer	.10
Retailer's gross profit	.15
Sale and delivery to consumer	.50
	$1.87

3—Cost of Marketing a Case of Fresh Eggs in June.

With the advent of warm weather it becomes necessary to pay more attention to the use of proper facilities and proper handling. The farmer is usually paid on a "loss-off" basis and according to quality. Such eggs as are stored have to be carefully candled and only the very best are desirable. Candling also is necessary at point of distribution. The neighborhood store finds it difficult to obtain satisfactory quality direct from the farmer or country merchant, and has no outlet for a shipment unsuited to its trade. The wholesale distributor becomes once more a useful factor.

Typical costs of the various stages are:

	Per Case.
Container	$0.30
Collection (if not collected, add 10c to first buyer and 15c to labor and shrink grading)	.25
First buyer's gross profit (see Collection)	.05
Concentrator's or receiver's gross profit	.10
Freight	.35
Sale and delivery to distributor	.10
Labor, grading	.15
Shrink in grading (see Collection)	.10
Cartons	.30
Wholesale distributor's gross profit	.15
Sale and delivery to retailer	.25
Retailer's gross profit	.60
Sale and delivery to consumer	.60
	$3 30

4—Cost of Marketing a Case of Fresh Eggs in August.

The first run of the second crop begins to appear during and after the harvest season. Nights are cool, flocks get more or less grain feed from offal of the harvest and the general quality of eggs that are well cared for improve. There are hot weeks, however, and sometimes extreme losses result. The trade are compelled to exercise the greatest care in buying. There is a wide range in the quotation, often as much as $4.00 to $5.00 per case. Part of the finest selections from August receipts are stored for fall use. At the same time the total production falls below consumption and the trade begins drawing upon reserves stored in the spring. The following costs apply to No. 1 fresh eggs of the best average quality, to obtain which it is necessary to discard more worthless eggs and to sell the various undergrades at a greater discount than in June.

Typical costs of the various stages are:

	Per Case.
Container (once used)	$0.20
Collection (if not collected, add 10c to first buyer and 20c to labor and shrink grading)	.30
First buyer's gross profit (see Collection)	.10
Concentrator's or receiver's gross profit	.20
Freight (if express 90c)	.39
Sale and delivery to distributor	.10
Labor, grading	.15
Shrink in grading (see Collection)	.50
Cartons	.30
Wholesale distributor's gross profit	.25
Sale and delivery to retailer	.25
Retailer's gross profit	.60
Sale and delivery to consumer	.60
	$3.94

5—Cost of Marketing a Case of Fresh Eggs in October.

There is keen competition for the last of the fall lay and the fresh egg market advances in proportion to the decreasing receipts. As the advance in price is an annual occurrence, there is a tendency to take profit by holding back the crop at every stage in its movement beginning with the farmer. As a result current receipts of fresh eggs in October are badly mixed with held stock. The stale eggs when sorted out are often of less value than good storage eggs. Strictly fresh meantime command a high premium and the range in the quotation is correspondingly wide. The movement being small, the cost of handling per case increases.

Typical costs of the various stages are:

	Per Case.
Container (once used)	$0.20
First buyer's gross profit	.30
Concentrator's or receiver's gross profit	.20
Freight (if express 90c)	.44
Sale and delivery to distributor	.15
Labor, grading	.20
Shrink in grading	.55
Cartons	.30
Wholesale distributor's gross profit	.30
Sale and delivery to retailer	.25
Retailer's gross profit	.90
Sale and delivery to consumer	.60
	$4.39

6—Cost of Marketing a Case of Fresh Eggs Gathered and Stored in June, Withdrawn and Sold in September.

This is the typical "summer storage." Eggs appearing on the market in June are the last of the spring lay, are not as good keepers and are as a rule marketed before the April eggs are withdrawn. An exception occurs during extremely warm weeks in summer when the supply of good fresh eggs is badly curtailed and first-class trade is supplied with Aprils-Mays in preference to June eggs, the early eggs being better quality.

Typical costs of the various stages are:

	Per Case.
Container	$0.30
Collection (if not collected, add 10c to first buyer and 15c to labor and shrink grading)	.30
First buyer's gross profit (see Collection)	.05
Concentrator's or receiver's gross profit	.10
Freight	.35
Storage	.20
Interest and insurance	.19
One carlot sale	.08
Sale and delivery to distributor	.10
Labor, grading	.15
Shrink in grading (see Collection)	.20
Cartons (use of cartons for storage eggs is limited, in September)	..
Wholesale distributor's gross profit	.35
Sale and delivery to retailer	.25
Retailer's gross profit	.60
Sale and delivery to consumer	.60
	$3.82

7—Cost of Marketing a Case of Fresh Eggs Gathered and Stored in April, Withdrawn and Sold in November.

This operation is typical for two-thirds of the eggs which are placed in storage, the heavy storing being in April and May and the greatest scarcity being in November and December. On account of the good quality of April eggs, the candling loss is less than if candling Junes. The distributing trade, however, are accustomed to taking more profit and not infrequently an exorbitant profit. The practice is not altogether a fault of the trade, but is encouraged by consumers insisting upon getting more fresh eggs than are to be obtained. Five cents a dozen ($1.50 per case) fairly represents the extra profit over the wholesale market still commonly taken either by the wholesale distributor or by the retailer or between them, in the sale of the best storage eggs for fresh, or as just eggs.

Typical costs of the various stages are:

	Per Case.
Container	$0.30
Collection (if not collected, add 10c to first buyer and 10c to labor and shrink grading)	.20
First buyer's gross profit	.05
Concentrator's or receiver's gross profit	.10
Freight	.35
One carlot sale	.08
Storage	.30
Interest and insurance	.49
Sale and delivery to distributor	.10
Labor, grading (both into and out of storage)	.25
Shrink in grading (see Collection)	.20
Cartons (often sold loose)	.30
Wholesale distributor's gross profit (see Retailer's profit)	.30
Sale and delivery to retailer	.25
Retailer's gross profit (not including any market profit or loss. The extra profit is sometimes taken by the wholesaler, as explained above the table)	2.10
Sale and delivery to consumer	.60
	$5.97

8—Cost of Repacking a Case of Eggs for Export.

The unusual conditions in Europe have greatly stimulated the demand for eggs from the United States and Canada to supply a deficiency in England. Prior to the war this movement was spasmodic and was not reckoned as a factor in the market.

Export eggs are packed in cases heavier than the standard domestic case in order to withstand the pressure of being loaded on shipboard by means of a canvas sling or net, and the pressure of a shifting cargo. It is customary also to use heavy white pulp fillers instead of domestic strawboard fillers and the eggs are candled at time of repacking.

Typical costs, based on the use of finest April storage at mark, are:

	Per Case.
New containers	$0.53
Extra padding	.03
One cartage	.03
Loading cars (including dunnage)	.02
Labor, grading and repacking	.16
Shrink in grading	.20
Supervision and overhead	.10
	$1.07

The Egg Crop.

The consumption of eggs in the United States is approximately one egg per day or one case per year per capita, there being 360 eggs in a case. A handy rule for reckoning the weekly egg consumption of any given locality is to double the population and divide by one hundred, which results in about the number of cases consumed weekly taken the year round.

The production of eggs is well distributed throughout the country, and in this respect differs greatly from tobacco, rice, citrus fruits and other localized crops and the problems of distribution are correspondingly different. An outline the shape of an egg, placed over the map of the United States with Chicago in the center, the point of the egg resting on Scranton, Pa., the southern limit including Tennessee and the northern limit Lake Superior, with the butt of the egg cutting Kearney, Neb., approximately bounds the states and the Province of Ontario wherein eggs are produced in as large or larger numbers than they are consumed. An exception is found in some parts of Texas and Oklahoma not included in the oval. Eggs are universally consumed in the United States and less than 1 per cent of the crop is exported. The production, therefore, is approximately equal to the consumption which may be roughly dividdfied into: one-third consumed on the farm; one-third consumed in small towns; leaving one-third of the crop for the large markets.

Of the third which comes to market about one-fifth or 20 per cent goes into cold storage at some stage of the movement and it will be observed that this represents not to exceed 6 or 7 per cent of the whole crop.

The last mentioned fact is exceedingly important and must be constantly borne in mind when considering the influence of supply and demand upon prices. A reduction of 5 per cent in a season's production or an increase of 5 per cent in a season's consumption of eggs would result in an extreme lowering of reserves unless counteracted by an adjustment to higher prices, and the reverse holds true of an increase in production or a decrease in consumption. With this fact in mind the sensitive movements in the quotation will be readily understood; also the highly speculative nature of the business of storing eggs.

There are two seasons of production, which broadly speaking include the spring season from January to June, inclusive, and the fall season August to October, inclusive. These periods vary somewhat owing to climatic and local influences and overlap, so that there are only four to six weeks in the year when the supply of strictly fresh eggs approaches nil. This period lies between the 1st of November and the 15th of December.

RECENT DEATHS.

Dr. Charles Caspari of Maryland.

Dr. Charles Caspari, State Food and Drug Commissioner of Maryland, died on October 20, 1917, at the age of 67. Dr. Caspari was a native of Baltimore and a graduate of the Maryland College of Pharmacy, where he was appointed to the chair of pharmacy in 1879. In 1910 he accepted the State Food and Drug Commissionership, which he held until his death. Dr. Caspari served on two revision committees of the U. S. Pharmacopoeia.

Col. E. J. Watson of South Carolina.

On October 28, 1917, Col. E. J. Watson, Commissioner of Agriculture, Commerce and Industries for the State of South Carolina, died at the age of 48. For 28 years Col. Watson served the state, refusing many tempting offers from various corporations and from Washington, and for 13 years he filled the position which he held at his death. It was in the discharge of his many duties that Col. Watson contracted tuberculosis of the throat, which caused his death.

John McCabe of Minnesota.

John McCabe, assistant dairy and food commissioner of Minnesota, died on October 4, 1917.

Mr McCabe was born in Reading, Connecticut, in 1850. In 1867 he left New York, where his early years were spent, for St. Peter, Minnesota. His vocation was that of contractor and builder, but in 1905 he was appointed food inspector and after the expiration of a year became assistant dairy and food commissioner, a position which he held until his death.

S. F. Evans Takes Up New Food Work.

"Instead of eating cream of wheat for breakfast, eat rolled oats or corn flakes; instead of using sugar, substitute corn syrup whenever you can; and in place of fats, make use of corn oils."

With this advice, Scott F. Evans, general manager of the Baltimore Pearl Hominy Co., who will head the corn, cornstarch and oats division of the Food Administration, began his new duties this morning. Under the plan which the Food Administration proposes to follow, it will first prepare licenses and regulations for the sale of different commodities.

These regulations will be submitted to committees of all manufacturers or producers of particular foodstuffs; the producers will then be licensed, and the actual work of carrying out and enforcing the food regulations will devolve upon the committees themselves. In the division to which he has been appointed Mr. Evans' duties will consist of exercising a general supervision over all of these committees.

"The immediate goal before us," he said this morning, "is to get the people of the country to eat more corn, more corn syrup and oil, more rice, oats and hominy, in order to release for export wheat, sugar and fats.

"There can be absolutely no doubt that any one of the substitutes we propose is every bit as nutritive and as palatable as the commodities we wish to conserve. We have made careful analyses which show that corn oil, for instance, is of as much food value as other fats, and that moreover it is much more digestible for many persons. In the South, of course, the people have long appreciated the use of corn bread, and we hope to have no trouble in extending this appreciation throughout the country.

"This year's corn and oat crops are both very large and will be ample to take care of the increased demand we hope to stimulate. The whole situation is just another of those cases where there is a chance to be patriotic and at the same time lose nothing by it."

Mr. Evans, who is 42 years old and a graduate of the University of Minnesota Law School, has for several years made a specialty of the erection of mills in the West and Northwest. He represented the white corn millers of the country in Washington until he was selected for his new position. He has lived in Baltimore for several years and expects, if possible, to keep his home here and go to Washington daily.

Annual Convention of National Manufacturers of Soda Water Flavors.

The twelfth annual convention of the National Manufacturers of Soda Water Flavors was held in New York City on October 25 and 26.

The officers elected for the year were: president, W. F. Meyer of the Warner Jenkinson Co., St. Louis; vice president, Samuel H. Mutch of Whittle and Mutch, Philadelphia; treasurer, W. W. Maltby of the Liquid Carbonic Co. of Chicago; secretary and attorney, Thomas E. Lannen of Chicago; directors, H. E. Harrison of the Liquid Carbonic Co., H. C. Schranck of the H. C. Schranck Co. of Milwaukee; E. Gromme of the Borghausen Chemical Co. of Cincinnati; D. W. Hutchinson of W. H. Hutchinson & Son, Chicago.

The principal matters considered by the convention were the war taxes and problems arising under the new War Revenue bill, particularly the interpretation of the War Revenue bill, the effect of war taxes and war conditions on cost of production, the alcohol situation, and the sugar situation.

Dr. T. B. Wagner of the Corn Products Refining Co. was invited to address the convention on the feasibility of using corn products for sweetening purposes to help out the sugar crisis. As a result, it was considered advisable to make experiments to see to what extent corn sugar, corn syrup and corn syrup mixtures could be utilized.

A unanimous resolution was passed that no attempt should be made to make any profit whatever out of the war taxes, but that the members of the association should do all in their power to keep the cost of producing soda water as low as possible.

Canadian Canned Goods Embargo Raised.

Canned vegetables may now be sold without restriction in any part of Canada. An announcement from the Canadian Food Controller's office states that the embargo of August 24 upon the sale of peas, beans, tomatoes, beets, celery, corn, spinach, rhubarb, and pumpkins preserved in cans, glass jars, or other containers, has been raised.

The lifting of the embargo applies to the three Maritime Provinces—Ontario, Quebec, and British Columbia. In the three Prairie Provinces the prohibition was withdrawn some time ago. The announcement adds that the embargo has been effective in stimulating the consumption of fresh vegetables and increasing the supply of canned vegetables available for the coming season.

Edible Vegetable Oils

By Glenn H. Picard,
of Mariner & Hoskins, Chicago.

OILS and fats are very widely distributed throughout the plant world though the commercial supply is derived chiefly from a small number of species. Generally, the plant's storehouse for oil is in the seed or its envelope, occasionally in both. The olive, with a high oil content in the pulpy mass surrounding the seed, is a source of oil from what is popularly called fruit. In the case of the oil palm we have the fruit yielding palm oil, while the seeds give palm kernel oil, each of which has distinctive characteristics differing from those of the other. All are familiar with the oily nature of the meats of nuts borne by various trees. Cocoanut oil, for instance, one of the most important of all edible fats, comes from the fruit of the cocoanut palm. What might be termed grain seeds are a source of immense amounts of oil, for instance, flax, sesame and mustard seeds. Some of the legumes, whether the pods mature above or below ground, are valuable producers of this material. The soya bean is typical of the first class while the peanut represents the second.

Use of Vegetable Oils.

Among the oils, olive oil is the one used chiefly as a component of salad dressing. In Italy, where it is less expensive, it is used as a cooking fat. The lower grades find their way into the manufacture of soap.

Cottonseed oil is very important as a constituent of oleomargarine. When well refined it makes an excellent salad oil; it is widely used for cooking, both in a liquid and in the semi-plastic lard-like form in which it is marketed by several manufacturers.

Peanut oil is used in oleomargarine and other substitutes for butter and, like cottonseed oil, when well refined it makes a good component of salad dressing.

Corn oil, for many years a shortening for commercial bakers, is now seeking a well deserved place in the salad oil group. Cocoanut oil, used industrially both in this country and in Europe for a long time, is rapidly increasing in favor as an edible product, the base for a highly satisfactory butter substitute, and also on the market as a semi-solid cooking fat. The oil from soya beans so far is used more abroad than here, but the next few years will without doubt see its rapid increase in the United States.

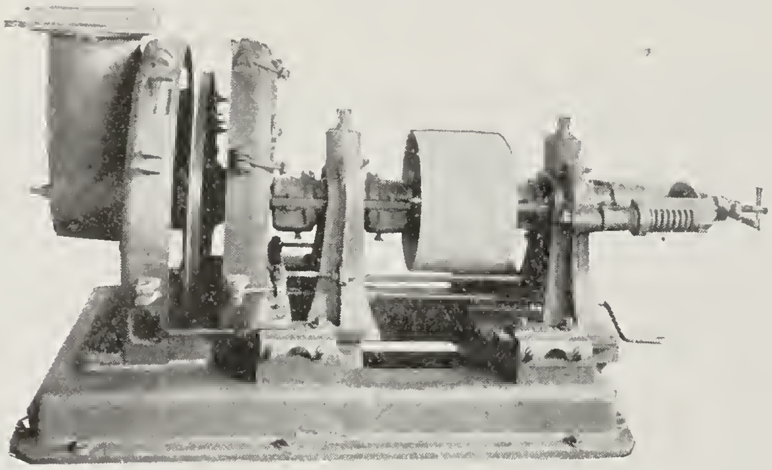
Winning the Oils.

There are two fundamentally different methods of winning oil from its source. They are, first, by the application of pressure by means of machinery of

Photograph from U. S. Department of Agriculture.

OLD OLIVE MILL AND PRESS.

varying types but employing the same mechanical principle. Practically all of the edible oils of the world are won by forcing the liquid out of its envelope through subjection of the whole mass to high pressures. The second method is to get the oil bearing material into proper shape and then flood it with a volatile solvent such as gasoline, carbon disulphide, benzole or carbon tetrachloride. These solvents, being miscible in all proportions with the common fats, dissolve and thus extract them. If a sufficiently large volume of solvent is passed through the material in such a manner that all of it is constantly wet with a changing supply of the volatile liquid, the oil content of the oleagenous material can be economically reduced to a very low point.


Photograph from Buckeye Iron & Brass Works, Dayton.
DISC HULLER.

The application of pressure is brought about by two types of machines—the hydraulic press and the expeller.

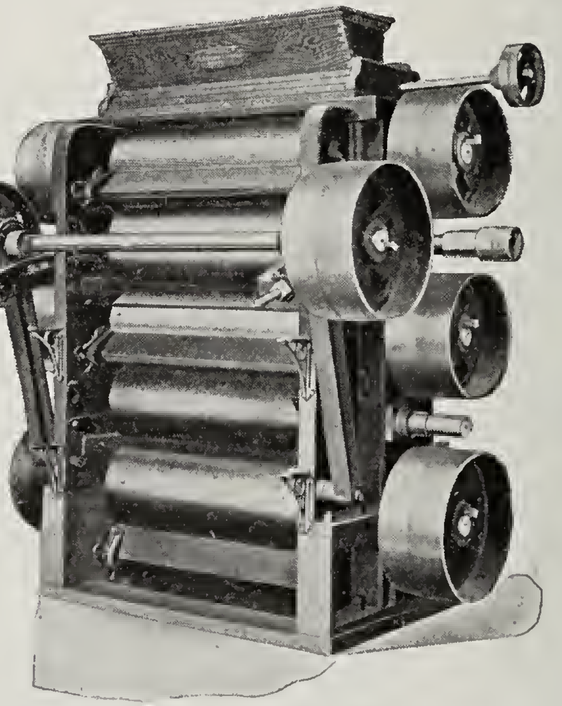
In the former there are a series of plates lying between four columns which are bolted at the bottom through the cylinder casting and at the top through a head block. Pressure is applied by the upward movement of the piston in the cylinder. The oily material, after it has been decorticated or ground or perhaps both, with or without heating or cooking, as the case may be, is wrapped in press cloth cut in one of several shapes and placed in comparatively thin sheets in the press. The raising of the piston by the application of hydraulic pressure squeezes the pulpy material between the plates, causing the oil to run to the sides and ends, from where it is conducted to a trough behind the press. In most of the American presses the plates are supported from the top by links. When the piston is down there is space enough between plates to insert the wrapped pulp. Some, called box plates, have steel sides bolted at right angles, forming a barrier past which the mass cannot go when pressure is applied. The wrapper holds the materials in place at the ends. This type is used for cottonseed crushing.

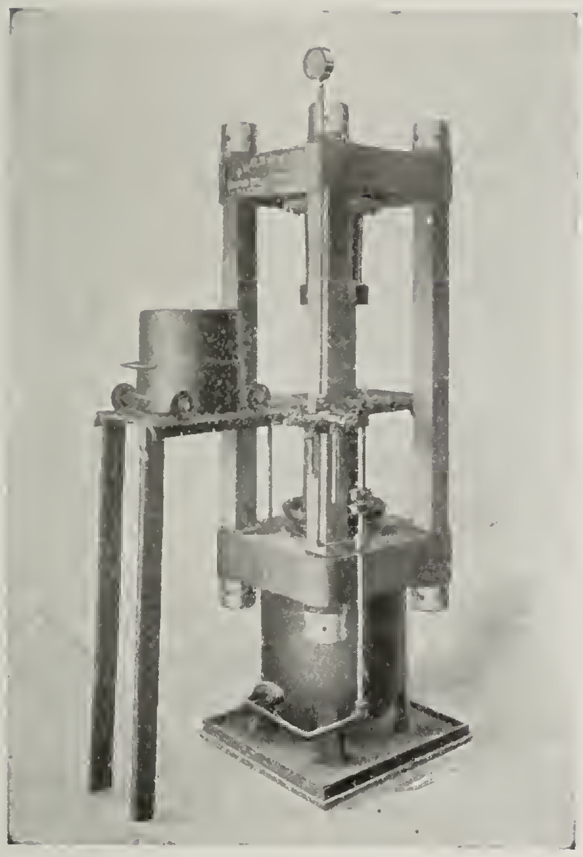
Another design which does away with press cloths is the cage press, which consists of a steel shell perforated so that the liquid can run out. The material, separated into cakes only by the insertion of loosely fitting metal discs, is placed within this shell and over the piston. As the pressure rises the oil runs out of the holes. Sometimes instead of a perforated shell the retaining medium consists of cut steel bars rigidly bound together in such a manner that there is a narrow opening between them through which the oil exudes while the solid matter is retained.

The expeller employs pressure as the means of separating the liquid from the solid, but the method of its application is different. The meal, which must be dry and not too finely ground, is fed into a heavy helical screw which forces it through a cone made of cut steel bars rigidly held together and braced. As the material travels forward the pressure is increased, forcing the oil out through the spaces between the bars while the solid matter leaves the end of the cone as a spiral ribbon approximately one-eighth inch in thickness.

The first step in the winning of oil by means of any of the machinery mentioned is grinding. This is accomplished in the case of a big majority of the seeds by means of heavy chilled iron rolls set one above the other, usually in stacks of five. Their action is only one of crushing. The fineness is controlled by roll speed and rate of feed. When the material is not in such form that it can be fed into rolls it is crushed in edge mills or chasers, as is the case with olives. It is frequently not desirable to grind too finely but rather to shred, and in such cases a disintegrator is the means of reducing the material to the proper form.

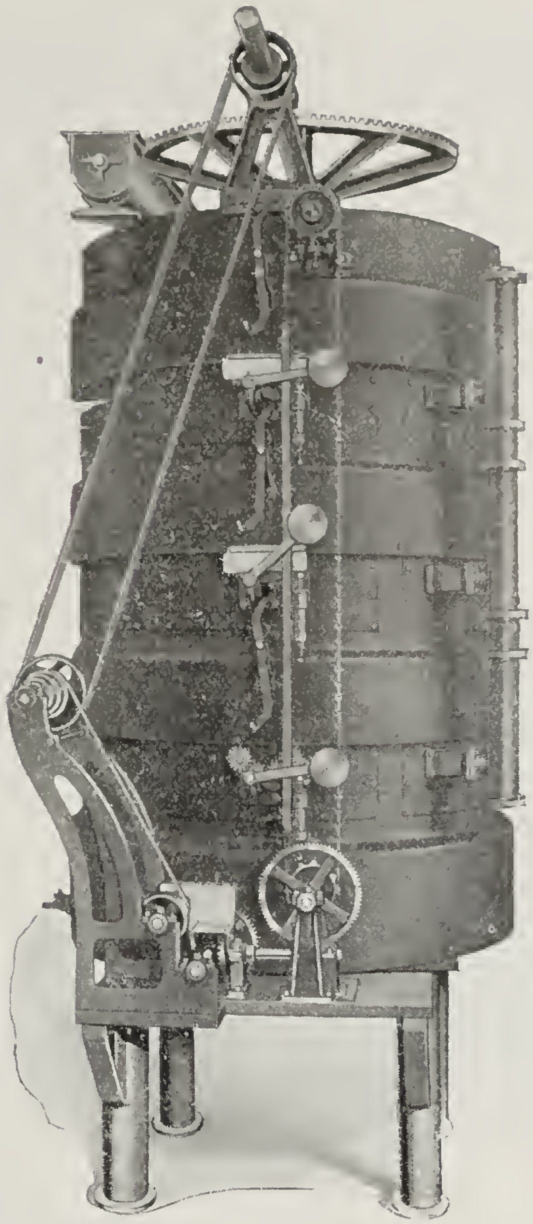
Sometimes the oil bearing material goes from the rolls direct to the press. This practice, termed cold pressing, results in a lower yield but, generally, in improved quality. If the substance is to be hot pressed it goes from the rolls into heaters or cookers of varied designs. Some are merely steam heated conveyors while others are circular compartments, often superimposed so that the discharge of one is the feed of that below. They are fitted with a steam jacket and a hollow stirring arm through which live steam may be injected into the material to be extracted. This heating or cooking process softens the bodies surrounding the oil and thus permits of more rapid and more complete extraction. However, the oil takes up more moisture and dissolves substances from the enveloping mass that for edible purposes detract from its value.


Photograph from Buckeye Iron & Brass Works, Dayton.
CRUSHING ROLLS.

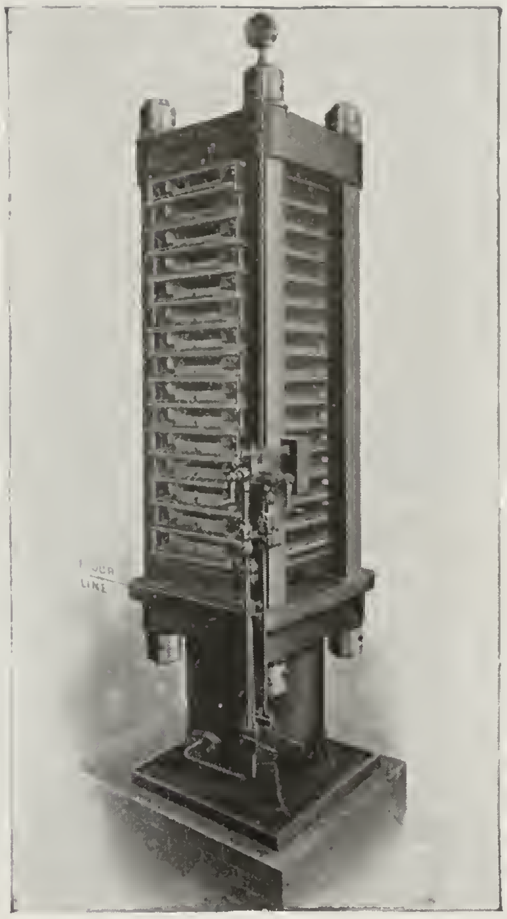


Photographs from Buckeye Iron & Brass Works, Dayton.

CAGE PRESS.



COOKER.



BOX PRESS.

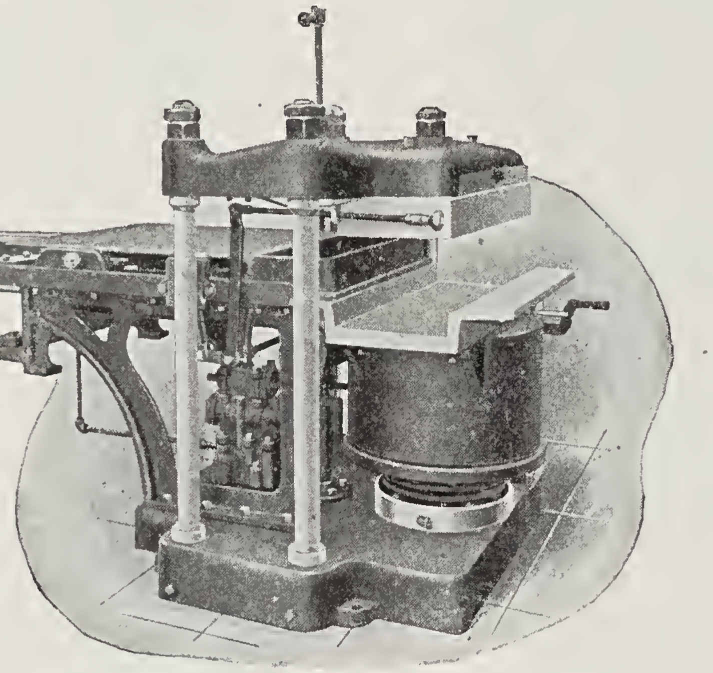
The initial step in the operation of winning oil by extraction is also grinding. This is done to open up the oil cells and thus expose their contents to the action of the solvent. The machinery used again depends upon the character of the material to be handled. After grinding, the oleagenous substance is placed in the receptacle and flooded with solvent which is fed in a slow stream throughout the operation so that fresh portions will continually come in contact with the oil. To prevent cracks forming in the material, through which the solvents will pass without effect, it is frequently agitated either by rotating the extractor on trunnions or by an interior stirring device. When extraction has been carried to the desired point the liquid is drained from the vessel and live steam let in. This removes the last trace of solvent but leaves the meal so wet that it must be dried. The oil and solvent mixture is distilled first by heat alone and then by the admission of live steam which removes the volatile portion. The vapor from both the meal and oil distillations is led to a condenser, from which it runs, a liquid that is used over and over. Little edible oil is made by this process because of the difficulty of eliminating the odor and flavor imparted by the solvent. A beginning had been made in its use in both England and Germany before the war.

Standards of Comparison for Oils.

The term quality as applied to edible oils embraces a number of factors which vary somewhat with the use to which the material is to be put. In general, an oil will be judged by the consumer on these properties: color, freedom from suspended or settled matter, flavor, ability to remain sweet during storage and freedom from solid material at comparatively low temperatures. When a fat is used for cooking a discerning buyer will also want to know how high it can be heated without charring or developing an acrid flavor. The lesser the tendency to do this, the longer it can be repeatedly used for deep frying, for instance. Further, the higher the temperature at which it can be maintained the quicker the material to be fried will crust over with consequent decreased depth of penetration and lower absorption. Another point to be considered is the softness and plasticity of the fat at ordinary temperatures, for on them are dependent the ability of a cook to properly work the shortening into the flour. If the fat is not plastic enough, the dough or batter may be uneven, while when too soft the tendency is to use too much, thus producing an unsatisfactory product.

The color of a fat is affected by the condition of the raw material, the method of extraction and the manner of handling. If an oleagenous material is dirty, the oil will often be stained by it. If the fruit or seed is green, decayed or mouldy, the color of the oil will be off. Sometimes a proper bleaching or clarification will correct this fault and render the material of first quality in this regard.

The flavor of a fat or oil is, perhaps, the most important characteristic of an edible product. It is influenced by many things, some of which are inevitable while others can be avoided. Nature is the first important factor in that she controls the flavor through the processes of growth, for it may be influenced by the climatic or soil conditions prevailing during the development of the oil bearing portion. The strain of the plant may also affect the flavor, as for instance, with the apple, where each of the various kinds has its characteristic taste. These things are particularly true in the olive and, of course, are beyond the control of the manufacturer except as he may be able to influence flavor by blending or other treatment. The flavor is also a function of the ripeness of the fruit. The individual bodies must be handled in the way most suited to develop the best in each.



Photograph from Buckeye Iron & Brass Works, Dayton.
STEAM FORMER.

Chemical Composition and Treatment of Oils.

All oils and fats are chemical compounds of fatty or oil acids and glycerine termed esters. The bond between the two is broken with comparative ease, so much so, in fact, that great care must be exercised to prevent it. The free acids of any fat are very different in flavor from those of the oil from which they are derived. The degree of difference varies with the acids, of which there are many in the common fats. The presence of very small amounts of some of them unfits it for use as a food while others may be present to a somewhat greater extent without ill effect. When there are acids in it a fat is termed rancid. The degree of rancidity is, therefore, dependent upon the amount and character of the free fatty acids present. When an oil is properly pressed from sound fruit it is neutral, but when the envelope of the oil is bruised, broken, mouldy or has fermented or decayed, then the fat splits to a greater or less degree into its acids and glycerine. Therefore, the first requisite for the production of neutral or sweet fats is a raw material that is sound. With the large sized fruits or nuts such as olives or peanuts, hand picking is possible, so that an oil that is practically neutral can be obtained. The culls are crushed for oil to be refined or used for other purposes. With seeds it is next to impossible to remove the broken, unsound or green kernels for they are so close in size to the good ones that screenings will not avail. It is possible, however, in many instances to keep the good from the poor and thus improve quality.

When from any oleagenous substance it is desirable to produce an oil as near neutral as possible the crushing should be done cold, since heating with or without the addition of moisture in one form or another tends to raise free acid content.

Further, a hot pressed oil has dissolved in it more moisture and matter from the material surrounding the oil cells than does a cold pressed one. Moisture in oil tends to cause or hasten hydrolysis or the splitting of the oil into its components. The dissolved substances also assist this reaction as well as cause the development of undesirable flavors, as they age.

Another reaction causing an acrid taste is oxidation which takes place as the surface of a fat comes into prolonged contact with the air. Those oils which have the higher percentages of linolic or other unsaturated acids—that is, those capable of combining directly with the oxygen of the air—developed this taste more rapidly on standing and are, therefore, less desirable. The iodine number of an oil measures its ability to unite with oxygen.

When fats are in storage they absorb flavors from the vessels in which they are kept or sometimes from the air about them. A familiar example is the absorption by butter of the taste of certain vegetables stored with it in a refrigerator. Therefore it is essential in the handling of edible fats and oils to keep them in clean, sweet containers and apart from deleterious odors they may absorb. In Europe oils are sometimes stored in aluminum tanks because that metal is supposed to affect the flavor least.

The odor of an oil parallels its flavor so closely that what has been said concerning the former applies to the latter also. If the flavor is bad, the odor is almost sure to be unpleasant and vice versa.

If the crude oil resulting from any one of the extraction processes is neutral, of good flavor and color, it is clarified by filtration and delivered to the trade, but if the oil is dark, is rancid or has an undesirable flavor or odor it is refined. After many years of experimental work oil manufacturers have generally adopted a treatment with caustic soda solution as the fundamental one for edible oil preparation. The details of the operation may vary but the principle is the same. The oil is warmed and mixed while in agitation with water solutions of caustic soda. When the treatment is over the water and soap emulsified with some oil settles to the bottom while the clear oil is pumped off from the top to be further treated. This operation removes all of the acids by converting them into soap, which settles out. It also coagulates and frees the fat of substances dissolved during the crushing. The color, as well, is made brighter. For some purposes this oil is used after being freed from water and filtered. Some oils in order to bleach them further are given a subsequent treatment with fullers earth, which is agitated with them at temperatures controlled by the operator and then filtered out. Occasionally materials, such as bone black, are added to increase the bleaching power of the earth.

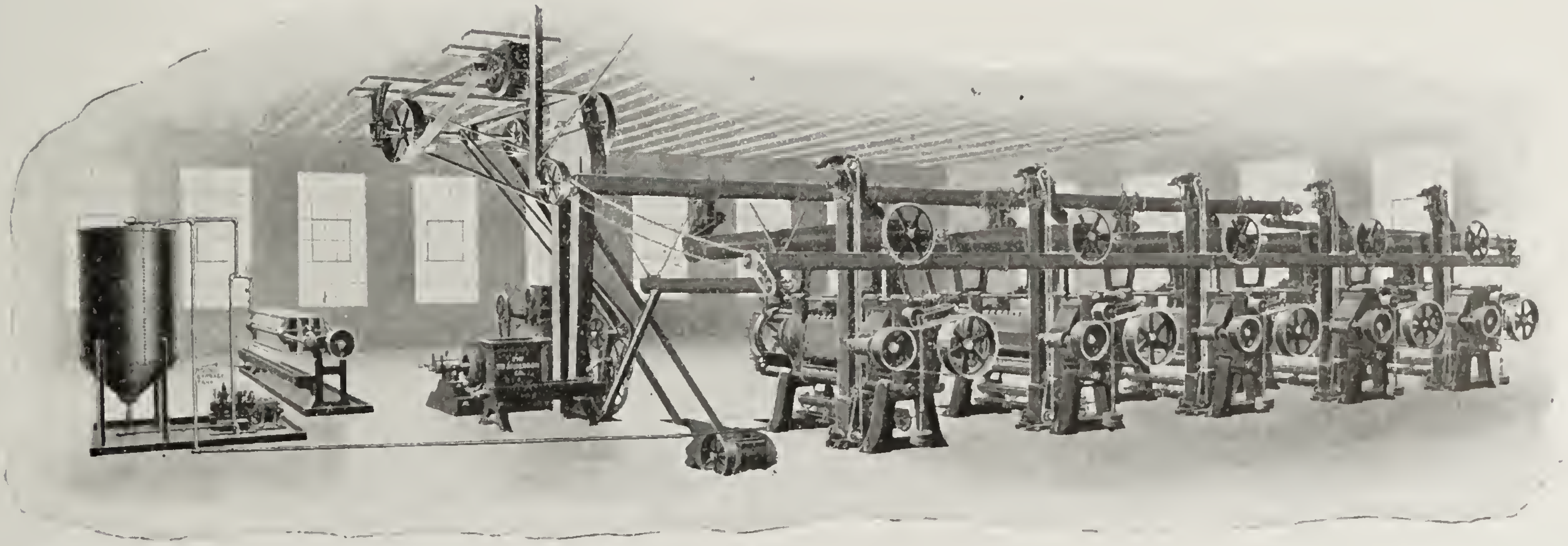
Much of the oil is accorded only this treatment but if it is still below the highest standard it is deodorized. Deodorization is accomplished by causing a current of dry steam to pass through the oil which is at a temperature above the boiling point of water before the steam is admitted so that none of it will condense. The details of the operation are varied by manufacturers as to the temperatures of the steam and oil. The design of the apparatus is also subject to modifications. One thing which is essential is a free passage for the steam and the vapors it carries, for they must not condense and run back into the oil. A partial vacuum is frequently maintained in the system to facilitate their elimination. This process removes practically all of the flavor, producing a bland or almost tasteless oil. It is possible to do this because most of the bodies which impart taste to a fat are more volatile than the fat itself and also because that material is so stable that no new flavors are created by the treatment. This process has opened to the edible field many products hitherto employed in industrial operations only. The only objection that can be raised to its use is that simultaneously with undesirable bodies there are removed those which are desirable and even make the fat more palatable and which are characteristic of the raw material. For instance, a well made olive oil has a flavor that to many makers is the most desirable of all salad oils, which, if the oil had been subjected to steam treatment, would have been removed. The oil from sound peanuts also possesses a nutty flavor, absent in deodorized oil, and pleasing to the average palate.

Fats are generally composed of mixed glycerides—that is, each contains several different fatty acids combined with glycerine. The chemical composition of the acid determines the physical condition of the fat. The glyceride of pulmitic and stearic acids, for instance, are solid and hard. Beef suet and mutton tallow are examples. The glycerides of oleic and linolic acids are liquid. Further, there lie between the hardest and the liquid fats those of medium characteristics, so that it is possible to select fats of a wide range of hardness. There are present in all solid fats some that are liquid and vice versa. One of the results of varying hardness is changing melting points. This offers the opportunity for the separation of one from the other, accomplished by refrigerating systems, enabling the operator to get his mixed fat to any predetermined temperature. While at that point the fat is placed in a hydraulic press, which squeezes the liquid or semi-liquid fats out from those that are solid. In the case of liquid fats there are those which cloud up or even become semi-sold or solid at the low temperatures prevailing during the winter. A salad oil which is not a clear, bright liquid is often discriminated against. In order to obviate this trouble the oils are chilled and while cold either filtered or pressed, thus removing the solid fats and yielding a liquid which will be clear and bright at any temperature at which they are likely to be used.

Commerce in these various fats from widely different sources and with characteristic qualities whch differentiate them from one another is justified because they also respond to chemical and physical tests in a manner which enables an experienced chemist to identify each and to detect mixtures when sold as an individual oil or fat. In other words, within reasonable and practical limits it is possible to locate adulteration of an expensive desirable product with one of lower cost. Therefore, with the chemist to rely on for purity and oneself to determine the quality, no one need have foisted upon him adulterated or inferior material.

Food Value of Oils.

The relative food values of the different vegetable oils has been a subject of study by the United States Department of Agriculture and others. They find that all are about equal in this respect. Fats are a concentrated food without fibre or other roughage. An ounce of any typical fat is equivalent to about 255 calories, while the same weight of a pure carbohydrate, that is, starch or sugar, or of pure protein, such as lean meat, will yield but 113 calories. From this we see that the same amount of fat gives a little more than twice as much energy as the other elements of diet mentioned. They are not, however, muscle and body building materials. Further, the digestibility of the various fats has been found to be about equal. The figures as published in *Farmers' Bulletin* No. 505 are: peanut oil, 98.3%, cottonseed oil 97.8%, olive oil 97.8%, cocoanut oil 97.9%, and sesame oil 98%. This means that when purchasing, one may forget entirely the food value or the comparative digestibility of the fats and oils available, since they are, in those respects, practically identical.



Photograph from the V. D. Anderson Co., Cleveland.

COMPLETE VEGETABLE OIL WORKING UNIT.

RETAIL PRICES,

Average Price per Pound	Average Price per 100 Calories		St. Matthews, S. C.	Lima, Ohio	Augusta, Me.	Providence, R. I.	Hartford, Conn.	New York, N. Y.	Trenton, N. J.	Baltimore, Md.	Washington, D. C.	Richmond, Va.	Raleigh, N. C.	Buffalo, N.Y.
		CANNED FOODS												
14.4	15.48	String Beans, No. 2, Std., 1 lb. 3 oz	15	18	15	16½	20	15	20	15	12½	20	15	.....
14.2	3.23	Corn, No. 2, Std., 1 lb. 4 oz	15	18	18	18	18	18	20	20	17	20	20	.....
13.6	5.44	Peas, No. 2, Std., 1 lb. 4 oz	20	18	17	15	20	18	18	16	14	25	25	15
9.6	9.60	Tomatoes, No. 3, Std., 2 lb. 1 oz	20	20	18	20	25	20	20	20	18	20	20	15
13.4	6.38	Peaches, No. 2½, Std., 1 lb. 13 oz	[illegible]	25	25	25	30	24	23	25	15	22	25	25
14.2	2.03	Pineapples, No. 2½, Std., 1 lb. 14 oz	30	25	25	28	25	25	20	28	18	25	25	35
26.6	4.03	Salmon, No. 1, tall, red Alaska, 1 lb	25	30	25	30	30	24	27	28	25	25	20	30
59.6	6.48	Sardines, ¼, oil key, Dom., 3¼ oz	8	15	13	15	25	12	18	10	6	12½	17½	.....
		CEREAL PRODUCTS												
6.6	.41	Wheat Flour, No. 1, Pat., 49 lb. bag	320	325	330	360	350	350	360	300	300	316	340	340
7.2	.45	Rye Flour, Std., 24½ lb. bag	.....	.....	170	175	220	180	219	.....	.....	200	245	.....
7.3	.45	Graham Flour, 10 lb. bag	75	60	70	70	90	75	90	80	70	90	75	45
19.0	1.14	Shredded Wheat, 12 oz	15	15	14	15	15	12	12	15	12	15	15	14
14.1	.86	Cream of Wheat, 1 lb. 12 oz	25	28	25	25	25	23	22	25	24	25	25	25
9.9	.55	Quaker Oats, 1 lb. 4 oz	15	12	10	12	12	10	10	12	11	10	15	10
8.2	.45	Rolled Oats, Bulk, lb	10	.....	6	7	8	7	6½	.....	8	10	15	.....
11.9	.75	Rice, Fancy Head, lb	9	12½	10	12	12	10	12	12	12	15	12½	12½
24.4	1.49	Kellogg's Tstd. Corn Flakes, 8 oz	15	12	12	12	12	10	10	12	12	12	15	12
7.1	.44	Corn Meal, lb	5	7	7	7	9	7	7	6	7	7	6	6
9.4	.58	Hominy Grits, lb.	5	15	.....	8	16	7	7	7	8	15	8	12
11.3	.70	Pearl Barley, lb.	.....	15	15	10	12	9	10	8	10	15	15	12
10.2	.85	Bread, lb.	10	10	9	9	10	10	10	9	10	10½	7	12
17.6	.93	Crackers, Bulk, Soda, lb	10	18	18	18	22	14	19	18	12	20	15	.....
25.8	1.36	Uneeda Biscuit, 4⅝ oz	7	8	7	7	7	7	7	7½	7	7	7½	7½
12.9	.79	Macaroni, Bulk, lb	10	15	18	15	14	10	14	12	12	9	20	.....
		DRIED FRUITS												
16.1	1.22	Evaporated Apples, lb	15	.....	13	20	13	15	.....	.....	15	.....	20	.....
16.0	1.33	Evaporated Peaches, lb	25	20	18	18	13	15	14	.....	15	15	20	.....
14.4	.92	Raisins, Seeded, per pkg., 15 oz	15	15	15	14	15	15	13	15	12	16	15	.....
16.2	1.39	Prunes, Medium Sized, lb	12½	18	15	16½	18	15	13	16	14	20	20	20
		SUGAR AND SYRUP												
9.8	.54	Granulated, lb.	10	10	10	10	11	10	10	9½	9½	9½	11	10
8.6	.60	Corn Syrup, 10 lb. pail	75	75	.....	.....	100	.....	85	.....	90	100	90	.....
23.3	1.57	Comb Honey, lb.	10	25	25	30	32	25	30	.....	23	25	20	30
29.4	1.31	Cocoa, lb.	.....	30	22	30	25	25	30	30	27	22½	45	22
		FATS												
48.4	2.04	Bacon, Sliced, lb.	40	55	50	58	45	45	48	50	45	55	55	42
51.9	1.49	Creamery Butter, Fancy, lb	55	50	55	56	60	52	55	50	55	55	55	52½
31.8	.78	Pure Leaf Lard, lb	25	32	32	32	35	34	30	35	30	25	30	35
33.7	.99	Oleomargarine, Uncolored, lb	.....	35	33	38	35	30	33	35	30	35	35	32
59.8	1.49	Italian or Spanish Olive Oil, qt. tin	.....	125	.....	110	95	140	100	110	100	100	100	100
30.2	.75	Cottonseed Oil, qt. tin	35	75	30	70	75	45	43	35	50	60	70	35
33.4	.83	Corn Oil, qt. tin	.....	65	.....	70	65	60	.....	.....	.....	.....	.....	.....
36.3	1.32	Peanut Butter, lb	25	25	20	30	25	25	22	.....	20	.....	40	19
8.2	2.65	Milk, qt.	10	13	10	13	13	12	12	13	14	14	17	13
35.7	1.72	Cheese, American, Cheddar, lb	35	38	32	32½	35	40	32	40	35	33	35	35
35.3	5.88	Eggs, fresh gathered, firsts, doz	45	48	55	75	75	57	52	50	55	47	50	55
		VEGETABLES												
2.9	.97	White Potatoes, bu	225	175	190	210	200	200	180	190	180	120	275	200
3.9	.87	Sweet Potatoes, bu	100	250	225	220	175	225	230	150	200	200	125	.....
4.9	2.45	Onions, lb.	.....	5	5	6	7	4	5	6	5	10	6	4
19.6	1.23	Lima Beans, dry, lb.	15	20	.....	22	22	18	19	20	22	20	23	.....
18.8	1.20	Navy Beans, dry, lb	10	20	.....	20	13	18	19	20	20	.....	23	.....
16.9	.91	Peanuts, lb.	10	20	15	16	18	17½	15	.....	20	.....	.....	18
3.4	2.83	Cabbage, lb.	4	3	3	3	3	5	3	4	3	6	4	4
4.6	2.71	Beets, lb.	.....	2	4	5	7	2½	4	.....	8	.....	12½	4
		MEATS AND FISH												
27.7	4.26	Beef Round Steak, lb	30	32	30	40	35	32	35	35	30	28	30	26
34.3	6.86	Veal Cutlets, lb.	.....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	40	40	40	35	33
28.3	3.25	Leg of Mutton, lb	.....	30	.....	35	28	26	28	.....	30	33	30	28
33.5	3.99	Leg of Lamb, lb.	.....	[illegible]	[illegible]	[illegible]	32	30	35	38	35	33	35	29
36.1	2.93	Pork Chops, lb.	35	35	32	50	35	35	38	38	40	35	45	35
44.6	2.35	Ham, Sliced, med. fat, lb.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	45	50	40	40	45	45
33.6	11.59	Chickens, Broilers, lb.	25	30	35	48	40	32	38	35	32	33	35	34
22.3	6.19	Salt Cod, lb.	.....	[illegible]	.....	[illegible]	[illegible]	[illegible]	20	15	20	18	20	18
22.3	2.23	Salt Mackerel, lb.	.....	[illegible]	.....	[illegible]	[illegible]	22½	22½	20	15	10	25	24
28.4	6.31	Halibut, lb.	.....	30	.....	45	35	40	35	.....	28	.....	25	32
28.1	4.39	Salmon, lb.	.....	[illegible]	.....	[illegible]	[illegible]	30	40	.....	28	.....	20	30
24.9	7.78	Whitefish, lb.	.....	20	.....	22	28	30	.....	.....	20	.....	13	25

VEMBER 1, 1917

Columbus, Ohio	Cleveland, Ohio	Cincinnati, Ohio	Indianapolis, Ind.	Lexington, Ky.	Louisville, Ky.	Nashville, Tenn.	Little Rock, Ark.	Chicago, Ill.	Madison, Wis.	St. Paul, Minn.	Fargo, N. D.	Sioux Falls, S. D.	Des Moines, Iowa	Denver, Colo.	Helena, Mont.	Salt Lake City, Utah	Reno, Nev.	Portland, Ore.	Los Angeles, Cal.	San Francisco, Cal.
18	25	20	23	15	20	20	15	15	20	12½	15	15	15	15	15	19	15	15	17½	12½
15	15	17	16½	15	20	15	20	20	19	15	15	18	15	15	20	19	20	15	12	17½
15	23	17	15	15	20	15	20	16	15	12½	15	17½	15	15	15	17½	15	15	11	12½
20	23	23	21½	20	25	15	20	22	22½	18	20	20	20	20	20	.....	17	15	15	15
25	30	20	24½	25	25	17	22	25	30	25	25	23	25	25	20	28	30	25	21	15
30	25	27½	35	25	25	20	30	25	30	25	30	25	35	35	30	25	27	25	21	20
25	25	25	27½	25	30	17	30	30	20	28	30	30	30	30	20	15	30	20	30	25
9	9	10	15	8	12½	12	7	11	15	7	8	7½	10	15	15	9	15	7½	7	10
349	350	350	330	335	315	295	350	315	350	285	295	312	300	280	325	275	340	280	285	295
.....	196	.....	.....	.....	165	150	.....	171	196	150	150	180	160	140	165	.....	.....	150	159	165
90	80	95	75	80	70	71	80	70	80	65	65	75	65	75	70	65	50	75	63	70
15	15	15	14	15	15	12	15	12½	15	15	15	15	15	15	15	14	14	15	12	15
25	20	25	25	25	25	22	25	23	25	25	25	25	25	25	30	27	25	25	22	25
12	15	12	12	12½	10	10	12	12	12	12	12½	13	13	15	15	15	18	15	11	12½
6½	10	7	8	10	10	8	8	6	7	8	7	.....	10	8	8	.....	8	8	7½	7
12½	10	12	15	12½	12½	10	12	12	10	10	10	12½	10	15	12½	12½	10	10	10	10
12½	15	12	12½	12½	12½	10	12	12	12	12	12½	12½	13	15	12½	12	12	12½	10	12½
7	8	7	7½	6	7½	5	6½	6½	8	8	7	7	7	8	8	8	10	7	7	7
7	8	7	8	10	7½	7	15	.....	15	10	7	.....	10	15	8	7	.....	7	11	8
12½	8	10	10	10	10	10	15	10	10	10	10	12½	20	8	12½	12	12½	12½	10	10
10	12	10	9	10	.....	10	10	10	10	10	10	12	12	10	10	10	13	10	10	10
20	18	20	20	18	20	15	14	18	18	20	15	.....	18	20	20	.....	20	18	14	10
7½	10	8	8	7½	7½	6	8	7	8	8	7½	7½	7	8	7½	7½	7	7½	6	7½
15	12	15	14	15	7½	8	15	10	12	12½	12½	12½	12½	10	15	.....	15	12½	8	10
.....	20	13	.....	20	20	16	17½	.....	.....	.....	15	15	15	15	15	18	18	15	15	12½
22	20	15	18	17½	20	14	15	18	15	15	15	17	20	15	12½	17	15	20	12½	10
13	13	12	14	12½	12½	10	15	15	15	15	15	11	15	10	12½	14	13	12½	11	8
18	12	15	21	17½	17½	15	17½	18	15	15	15	20	15	20	12½	12½	15	15	14	12½
11	10	10	10	10	10	9	10	8½	10	10	10	9½	12½	10	10	8½	10	8	8	8
80	.....	.....	85	80	75	75	75	88	75	75	90	95	100	95	100	90	93½	85	88	60
25	22	25	24	25	20	20	20	25	25	25	25	25	20	25	20	20	22	20	20	20
20	25	25	29	.....	30	28	50	25	25	25	30	50	35	45	45	.....	30	25	20	20
35	45	45	43	42	55	40	45	45	47½	50	45	55	50	55	50	47	50	50	60	55
48	52	52	47	50	55	52	55	50	49	47	46½	48	50	50	55	55	55	50	50	50
32	32	30	34	30	30	30	32	30	32	35	30	30	35	35	33	27½	41	28½	26	30
35	32	35	34	33	30	35	37	35	34	30	34	33	28	35	37½	36	.....	32½	30	35
125	.....	125	115	115	125	115	.....	100	110	100	125	140	125	100	115	125	110	100	105	95
45	55	65	65	50	60	55	38	60	65	70	75	75	65	90	50	65	55	45	48	45
....	.....	.....	74	60	60	.....	65	47	.....	.....	60	45	65	90	75	65	65	.....	.....	35
23	24	25	25	25	25	25	35	25	30	22	25	25	25	30	30	25	30	20	20	22
11	14	12	.....	13	15	5	20	13	11	10	13	11	14	12	12½	12	10	12½	12	12
35	34	35	45	40	40	30	35	35	38	35	35	35	35	40	35	35	36½	45	27	30
48	48	50	47	45	50	40	50	48	43	45	43	40	45	60	70	55	65	60	63	65
180	150	200	180	185	220	160	200	165	150	150	125	140	165	167	135	90	150	135	180	165
200	320	200	275	200	225	100	125	175	215	200	260	230	185	372	330	275	250	300	165	165
5	5	6	5	7	7	4	5	5	4	4	4	5	4	5	5	2	3	3½	3	3
20	18	18	20	20	20	17	20	18	22	20	20	24	20	20	18	19	20	17	17	17½
20	20	18	20	20	20	17	20	18	20	20	18	24	20	20	18	19	20	15	17	15
15	12	15	15	.....	20	14	15	.....	15	25	18	20	20	15	15	18	15	15	15	20
4	2	4	3	3½	5	3	5	2½	.....	2	4	5	3	3	3	3	3	3	3	2
4	3	2½	.....	5	10	.....	6	3	3	3	3	5	5	.....	3	3	3	4	.....	5
26	28	25	25	28	25	22½	25	30	26½	25	25	30	30	25	25	25	22	22	22½	22
35	35	35	30	30	30	30	25	35	28	25	19	35	25	40	35	40	30	22	40	25
18	30	20	38	24	20	25	25	28	24	25	30	25	40	30	32	25	28	28	27	25
25	32	30	45	40	30	30	30	32	30	28	35	35	40	35	35	32½	35	28	30	27½
37	33	33	30	30	35	30	35	37½	29	35	32½	38	40	37½	40	40	40	35	32½	35
50	35	40	47	45	40	40	45	45	40	45	30	42½	45	50	45	40	50	40	50	45
35	32	33	.....	40	30	22½	30	27	25	25	27½	25	28	40	38	40	40	23	45	45
20	18	18	30	.....	20	15	30	28	30	.....	28	25	25	30	20	.....	.....	25	20	17½
15	20	25	35	20	30	10	35	25	21½	10	30	25	25	20	15	15	.....	30	22	20
30	25	30	30	30	30	.....	.....	25	25	28	15	30	25	30	27	25	25	25	20	22
25	22	30	30	18	20	.....	50	25	25	25	18	25	25	25	27	22	25	17½	25	25
20	24	30	30	25	30	.....	40	28	30	.....	18	20	30	35	22	.....	20½	.....	.....	8

Oleomargarine in Canada

Tuesday, the 23d Day of October, 1917.

Present, His Excellency the Governor General in Council.

Whereas, attention is drawn to the abnormal demand for butter due to war conditions and to the very great probability that such abnormal demand and consequent high prices will prevail for this product for some time to come:

And, whereas, it is in the public interest, under the special conditions above named, that other fats should be available in Canada under strict and reasonable conditions as a substitute for butter;

Therefore, His Excellency the Governor General in Council, under and in virtue of the provisions of the War Measures Act, 1914, is pleased to make and enact and doth hereby make and enact the following regulations providing for the importation to Canada and the permitting of the manufacture, sale and possession within Canada of oleomargarine and establishing the conditions of such importation, manufacture, sale and possession, such regulations to be in force and to have effect for the period during which the present abnormal conditions continue, the conclusion of such period to be determined by His Excellency the Governor General in Council, as provided in the said regulations, and as a war measure only:

1. On and after the first day of November, 1917, and until the Governor in Council has by order declared that the present abnormal conditions have ceased, paragraph (a) of section 5 of the Dairy and Industry Act, 1914, Statutes of 1914, Chapter 7, shall be suspended insofar as it provides that no person shall manufacture, import into Canada, or offer, sell or have in his possession for sale, any oleomargarine as hereinafter defined, and the importation, manufacture, offering for sale and having in possession for sale of any such oleomargarine shall be permitted, subject, however, to the rules and regulations hereinafter set out.

2. For the purposes of these regulations "oleomargarine" shall mean and include oleomargarine, margarine, butterine, or any other substitute for butter which is manufactured wholly or in part from any fat other than that from milk and cream, which contains no foreign coloring matter and which does not contain more than sixteen per cent (16%) of water.

3. No person shall import or manufacture oleomargarine without having first obtained a license from the Food Controller for Canada, such license may at any time be cancelled by the Food Controller for the violation of any of the provisions of these regulations, or of any other regulation made by His Excellency the Governor General in Council or by the Food Controller.

4. No oleomargarine shall be manufactured in Canada unless it has been manufactured under the supervision of the Minister of Agriculture of Canada, and no oleomargarine shall be imported into Canada unless it has been manufactured under Government supervision, in the country of production and is accompanied by satisfactory evidence of such supervision.

5. Oleomargarine shall not be manufactured in any premises used as or connected with a butter factory, and no butter manufacturer or any person who handles butter for the purpose of re-working or mixing it shall be given a license to import or to manufacture oleomargarine.

6. No preservative shall be used for or in oleomargarine except salt without the written permission of the Food Controller.

7. No person other than a manufacturer of oleomargarine shall mix oleomargarine and butter.

8. Every person who either imports or manufactures oleomargarine shall keep a book in which is entered the date of each importation, purchase, sale and shipment of oleomargarine, and the quantity so imported, sold or shipped, the person from or to whom it has been purchased, sold, or shipped, the place from, in or to which it was imported, sold or shipped, and the name of the railway or steamship company by which such oleomargarine was transported: and such book shall be at all times open for inspection by the Food Controller or any person authorized by the Food Controller to examine the same.

9. The Food Controller shall have power from time to time to regulate the price of all oleomargarine sold in Canada, and may determine the price with respect not only to the quality of the oleomargarine, but also to the place in which it is sold.

10. (1) Every package open or closed and containing oleomargarine must be durably and clearly marked "Oleomargarine" on the top, bottom and sides of the package itself in printed letters not less than three-quarters of an inch square; and if such oleomargarine is exposed for sale by retail there must be attached to each parcel thereof exposed, in such manner as to be clearly visible to purchasers, a label marked "Oleomargarine" in printed capital letters not less than one-half inch square.

(2) Every person selling oleomargarine by retail in packages other than packages so marked shall in every case deliver the same to the purchaser in a paper wrapper on which is printed in capital block letters not less than half an inch long and distinctly legible the word "Oleomargarine." No other printed matter shall appear on the label.

(3) In all hotels, restaurants and public eating houses where oleomargarine is served, there shall be prominently displayed in some conspicuous place a placard containing the words: "Oleomargarine served here," in capital block letters, not less than one and one-half inches long.

(4) No label, placard or brand shall be used until it has been approved of by the Food Controller.

11. There shall be no customs duty charged on the importation of any oleomargarine into Canada that complies with the above regulations.

12. Any person violating any of the above regulations shall be guilty of an offense and shall be liable on summary conviction to a fine not exceeding $500, or to imprisonment for a term not exceeding six months, or to both fine and imprisonment.

Rodolphe Boudreau,
Clerk of the Privy Council.

Vinegar Prices Doubled.

According to statements made by a large vinegar company, there is every indication that vinegar prices this year will more than double last year's. This is due to the shortage of apples, the doubled cooperage price, and the fact that apples which last year cost an average of 41 cents a hundred are now bringing $1.50 and are expected to go up as high as $2.00.

Food and Our Army

By the Editor

ON ALL questions that have to do with the feeding of our increasing National Army the War Department and the Food Administration are in the closest accord. A permanent committee, representing both departments, acts in an intermediary capacity in dealing with questions of food in the army cantonments.

The subsistence of the Army is under the charge of the Quartermaster General, with the functions of inspection and sanitation carried out by the Medical Department of the Army. An army's health is intimately related to the quality of the food, its protection against spoilage and deterioration, and its preparation for the mess plate. These are purely physiological and sanitary problems. They must be studied under actual conditions of training and activity in the field by physiologists, food chemists, and food sanitarians.

The food division of the Surgeon General's office has engaged the services of scientists who have long been doing work of this kind, and they have been commissioned in the Sanitary Corps. Nutritional surveys are to be conducted by these officers in as many camps as possible and as often as time will permit, with the object of safeguarding the nutritional interests of the troops under observation. The food will be carefully inspected and recommendations will be made to the quartermasters and mess officers as to the most desirable kinds of food to be purchased. Suggestions as to menus and the most healthful modes of preparation will be made if desired.

In addition, the following information regarding typical messes is desired for record: a description of the food supply, how much and what kinds are purchased locally, how much and what kinds supplied by the quartermaster; a description of mess conditions, the protection against deterioration in the mess house or tent, the character of the cooking, the amount of savings on the ration allowance, etc.; and, finally, the amount of waste as determined by actual weighing and analysis of the garbage. From this information it will be possible to describe in exact physiological terms the amount of nutrients (protein, fat carbohydrate, and salts) consumed by the troops, and such facts will be invaluable for the proper nutrition not only of the armies themselves but of the civilian population as well.

A survey party will consist of four commissioned officers and a number of enlisted men of the Medical Department. They will inspect the subsistence stores of the camp and from an inspection of the entire camp will select a number of company messes for detailed study, giving preference to those which seem to be most efficiently managed. During the course of this study it is essential that conditions shall be entirely normal and typical of army life, considering the period of training attained. The troops will proceed with all their activities exactly as if no study were being made. A record of the troop activities will be made by members of the party and the Weather Bureau will furnish information as to mean temperature, humidity, barometric pressure, wind velocity, rain, snow, etc. The work will be carried on without interference in any way with the normal life of the company.

The party will require (1) living and messing quarters; (2) space in the hospital laboratory for drying of specimens of garbage and foods of unknown composition for analysis—the laboratory apparatus will be furnished by the Medical Department; (3) a scale for weighing garbage in cans and a place for grinding and sampling the same; (4) some means of transporting samples to the laboratory quickly; (5) an inventory of foods on hand in the mess house at the beginning and end of the survey period; and (6) actual weights of foods brought into the mess house during the period of the survey.

At the pleasure of the commanding officer instruction can be given to the company officers of a regiment on food values, simple methods of preparation adaptable to army life, and on the balancing of menus, so that proper amounts of the several nutrients will be furnished.

The actual amount of food sold by the exchange and the number of meals eaten outside the camp by soldiers on pass will be estimated as carefully as possible. These eating places also will be inspected.

The office of the food division announces that it holds itself ready to supply expert information to the commanding general on any aspect of the food problems of the Army at any time. Experts will be sent to study these problems upon request.

The problem of waste, which has been bothersome in the officers' training camps, is not expected to afford much difficulty in the cantonments. The training camps are not under the control of the War Department in this respect, and the waste there has been due to lack of skilled management in the handling of food. In the new Army cantonments the preparation of food is in the hands of trained mess cooks, who have been prepared for their duties by special courses of instruction in army cooking schools.

Moreover it is expected that a thorough-going plan for conserving all waste material will result in salvaging many thousands of dollars.

The Army's first consideration in this plan has been the sanitary and hygienic problem. At each cantonment the wastes will be collected and transported to a single "transfer station" under the direction of the sanitary inspector. Through the use of the two-can system wastes will be tightly inclosed throughout their collection. Sterilized cans will be substituted for the filled cans at the kitchens and the nuisance of disagreeable odors and danger from flies will be reduced to a minimum. Every step in the process of reclamation and utilization is carefully safeguarded and is under the absolute direction of a sanitary force, each contractor being placed under heavy bonds.

At the transfer station the wastes are turned over to a contractor, who will remove them to a point at least 3 miles distant from the reservation. There the wastes will be completely sorted. Bottles will be sterilized and sold for commercial use. Tin cans will be baled and the solder, tin, and iron reclaimed. Paper, which is estimated at about 5 tons per day, will be baled. Bones will be kept separate and ground for fertilizer. The hides of dead animals will be removed and the carcasses "reduced" for grease and fertilizer.

The chief items of waste will be garbage and manure. It is estimated that there are 1,200 animals at each cantonment, producing 120 tons of manure per day. At the date of the report the manure from 11 cantonments had been sold for $240,900 annually.

The greatest element of saving, however, is through the garbage. This has been sold for an annual price of $446,394.50. Garbage from 13 cantonments will be used for feeding swine. It is estimated on the basis of experiments conducted at the Chillicothe cantonment that the garbage waste from 10 to 15 men will feed one hog and enable it to add to its weight one pound per day. At this rate the garbage from these 13 cantonments will produce 18,980,000 pounds of pork per year.

When not used for feeding, the garbage will be "reduced," that is, cooked at high temperature, the grease extracted, and the remainder ground and used for fertilizer or feeds.

By the method of incineration formerly in use, not only would all these valuable waste materials have been destroyed, but it would have cost approximately $700,000 for the installation of incinerator plants and an annual charge of approximately $595,000 for their operation. When we add to this saving the amount annually received by the Government from these wastes, the net saving the first year amounts to $1,707,840.

The effect of this new plan, therefore, is not only to conserve large quantities of valuable food wastes, fertilizers, and so forth, but to turn into a large profit what has hitherto been a very considerable expense.

Care of Confectionery

By Walter C. Hughes,

Secretary, National Confectioners' Association.

This is the last of a series of six articles which have been published monthly relative to the above subject. The first dealt with the subject in a general way; the second with Chocolates and Chocolate Confections; the third with Hard Boiled Candies; the fourth with Nut Candies; the fifth with Marshmallow, Fudges and some other special kinds; this, the sixth, reviews the subject generally and makes further suggestions.

THERE are many things to be taken into consideration, relative to the care of confectionery, that do not pertain to the actual care of the candy itself, but, in many respects, are even more important.

Your stock may be kept ever so carefully and be scrupulously neat and clean, but if you neglect certain other essentials, your business won't succeed.

The Importance of a Good Location.

It is not always possible to select a store that has every advantage of location and outside appearance; such stores are not easily found. The question of location should be given careful thought, however, for on it frequently depends the success of a business.

Often it is the proprietor's most valuable intangible asset. Large firms go even to the extent of actually counting the number of persons who pass daily in front of their store, and so estimating the volume of transient trade before signing the lease. Don't just *rent a place*—any old place may do for the fellow who isn't progressive and doesn't care, but if you want to see your business grow, select the location that is most likely to bring you customers.

Outside Appearance of Store.

The outside appearance of your store may be likened to the dirty face of a boy who comes in and asks for a "*job*," hair hanging in his eyes, scowling look, yellow, unclean teeth and dirty ears. Or it may be likened to the bright-scrubbed face of another boy with his hair combed off his forehead, parted and brushed until it shines, his eyes twinkling with good humor, his teeth white, his ears wonderful to behold.

Which boy gets the "job"?

The first may be all right inside, but his outside is against him.

And so with the outside of your store. If its *eyes* are clouded with dust, if its *ears* are dirty, if its *hair* is hanging down its face, it isn't going to get what it's after.

Wash the windows frequently. Make them shine. Scrub the frames of the windows and doors. If you have awnings, keep them whole and clean. I know a very successful retailer who changes the paint on the front of his store to match the changing decorations and special displays in his windows. He gets the business because people are attracted by the neat exterior, and are kept watching to see what change he's going to make next.

Inside Appearance of Store.

But no matter how attractive the outside, if the inside doesn't match it your business won't succeed.

Calcimine, paint or paper the walls frequently. This will be money well invested and will bring substantial returns. Nothing adds so much to a store's attractiveness as clean walls, ceilings, woodwork and floors.

Don't be afraid of the electric light bills. Your store should be *flooded with light*. A dark, gloomy store will never make you rich.

Stock and Shelves.

Go over your stock frequently. Remember its appearance will make either a good or a bad impression. Keep it looking fresh, neat, clean. Dust brushes are less expensive than unsalable stock.

Shelves should be scrubbed frequently and painted or varnished as often as is necessary to keep them bright and clean. Clean stock and dirty shelves don't harmonize.

Show Windows.

Your show windows are your *silent salesmen*. They are the first to attract the attention of customers and they create the first impression.

A dowdy, overcrowded show window is worse than none. I have seen windows in retail stores that looked as if they had been filled with a *scoop-shovel*. They were elegant silent salesmen for a junk shop, but about the poorest thing imaginable for a place selling something to eat.

Select a few kinds of candy which you think will attract attention. *Floor* the window with some material that harmonizes with the surroundings and with the candy or packages displayed. It need not be expensive. One of the most attractive show windows I have ever seen was *floored* with cheese cloth.

Arrange your *display* neatly and artistically, always with price cards or some little descriptive matter that will attract attention.

Be careful with the arrangement of the display cards or other advertising matter that you put in the window. Otherwise the effect may be anything but attractive. I recall seeing in a retailer's show window three display cards, arranged in line, one after the other. The word at the top of each card was printed in very large type and the descriptive matter below in much smaller type. Standing five feet from the window, I read: *QUALITY—COUGHS—GUARANTEED.* The small type couldn't be read at all. Of course, the cards should have been separated and placed in different positions.

Remember when you are arranging a show window, you're painting a materialistic picture which you want to attract attention and make a good impression. It is just as necessary to arrange it artistically and with an eye to the color scheme as if you were painting a picture on canvas.

Show Cases.

Your show cases are more silent salesmen. Be sure that they display your goods to the best advantage. They should be brilliantly lighted, so that everything in them can be seen clearly, even at a distance. The selling power of a show case is not determined only by what it displays, but also by how clearly and from how far away it can be seen.

Silent salesmen need to be dressed neatly and look clean. Remember, they represent you and are selling goods for you.

Advertising Display.

Don't clutter up your store with a lot of display advertising. Select only what has real merit and artistic value, and arrange it where it won't intrude on your customers. Don't make them feel as if you were running a branch office for some lithographing firm. Even a good thing can be overdone.

Clerks.

I went into a retail store recently to buy some chocolates, and stood around for several minutes. No one came to wait on me. There was a girl in the back part of the store who glanced in my direction when I came in, but made no move to wait on me. She was looking in a mirror and trying to do something or other with a lot of fuzzy hair that was plastered in wads as big as saucers over each ear. She was a brave girl, not a bit afraid of powder. Chewing hard at a wad of gum, she finally completed her morning toilet and slouched up to me with the remark, "What do you want?" "Nothing! thank you!" I replied, and walked out.

That's the kind of clerk you don't want! Customers expect and have a right to prompt, intelligent, painstaking attention. That's service, and a clerk that isn't capable of giving all that isn't worth having around the place.

Conclusion.

After all is said and done, the problem of successful retail merchandising is up to you. You must work out your own salvation. No one can do more than offer suggestions and advice. Your success or failure depends entirely upon your own efforts.

Hard work, close attention to the care of your stock, accurate knowledge of costs and expenses, pluck and perseverance, honesty and integrity, and a constant determination to please your customers, these are the qualifications that spell *success*, whether selling candy or anything else.

Report of Cold Storage Holdings October 1, 1917.

American Cheese.

Reports from 438 cold storages show that their rooms contain 84,328,964 pounds of American cheese while on September 1, 393 storages reported 81,974,731 pounds.

Creamery Butter.

Reports from 380 cold storages show that their rooms contain 104,293,375 pounds of creamery butter, while on September 1, 354 storages reported 100,839,277 pounds.

Packing Stock Butter

Reports from 107 cold storages show that their rooms contain 2,493,174 pounds of packing stock butter while on September 1, 83 storages reported 2,531,215 pounds.

Eggs.

Reports from 440 cold storages show that their rooms contain 5,872,689 cases of eggs, while on September 1, 422 storages reported 6,025,860 cases.

Frozen Eggs.

Reports from 170 cold storages show that their rooms contain 16,575,576 pounds of frozen eggs, while on September 1, 158 storages reported 18,089,262 pounds.

Frozen Beef.

The total stocks of frozen beef reported by 293 storages on October 1 amounted to 137,806,561 pounds, while the total stocks reported by 277 storages on September 1 amounted to 117,676,964 pounds.

Cured Beef.

The total stocks of cured beef reported by 327 storages on October 1 amounted to 32,644,559 pounds, while the total stocks reported by 306 storages on September 1 amounted to 32,243,524 pounds.

Lamb and Mutton.

The total stocks of lamb and mutton reported by 163 storages on October 1 amounted to 3,221,234 pounds, while the total stocks reported by 155 storages on September 1 amounted to 3,075,856 pounds.

Frozen Pork.

The total stocks of frozen pork reported by 276 storages on October 1 amounted to 45,648,932 pounds, while the total stocks reported by 270 storages on September 1 amounted to 75,860,159 pounds.

Dry Salt Pork.

The total stocks of dry salt pork reported by 415 storages on October 1 amounted to 143,253,135 pounds, while the total stocks reported by 404 storages on September 1 amounted to 198,130,922 pounds.

Sweet Pickled Pork.

The total stocks of sweet pickled pork reported by 508 storages on October 1 amounted to 251,075,283 pounds, while the total stocks reported by 505 storages on September 1 amounted to 320,946 600 pounds.

Lard.

The total stocks of lard reported by 520 storages on October 1 amounted to 68,173,488 pounds, while the total stocks reported by 505 storages on September 1 amounted to 97,868,672 pounds.

Total Poultry.

The total stocks of frozen poultry reported by 254 storages on October 1 amounted to 42,725,515 pounds, while the total stocks reported on September 1 amounted to 51,830,157 pounds.

CANADA PROHIBITS SALE OF PACKAGED CEREALS.

ORDER IN COUNCIL.

[2959]

At the Government House at Ottawa.

Friday, the 19th day of October, 1917.

Present, His Excellency, the Governor General in Council.

His Excellency the Governor General in Council, under and in virtue of the provisions of the War Measures Act, 1914, or of any other enabling authority is pleased to order and it is hereby ordered as follows:

1. Unless licensed thereto under the provisions of this ordinance, no manufacturer or wholesale dealer shall, on and after the first day of November, 1917, and no retail dealer shall, on and after the first day of December, 1917, offer for sale in Canada any foods known as breakfast foods, or cereals, or flour or other foods which are the product of wheat, oats, barley, rye, rice, peas, beans, buckwheat, Indian corn (maize) or lentils in original packages of less weight than 20 pounds.

2. All such foods shall be sold by the pound or ton, and shall be net weight to the purchaser.

3. The Food Controller shall have the power to grant licenses, in such form and upon such terms and conditions as he may prescribe, for the sale of any such foods in original packages of such lesser weight or size as he may deem expedient and may by written order exempt from the provisions of this ordinance any particular class or classes of persons, communities or places during such period or periods as may be prescribed in such order, and may from time to time revoke or change any such order.

4. Any person violating any of the provisions of this ordinance shall be guilty of an offence and shall be liable upon summary conviction to a fine of not less than $10 and not exceeding $500, or to imprisonment for any term not exceeding six months, or to both fine and imprisonment.

Rodolphe Boudreau, Clerk of the Privy Council.

GOVERNMENT NOTICE.

Office of the Food Controller, Ottawa.

Whereas by Order in Council No. 2959, dated the 19th day of October, 1917, it was provided among other things as follows:

"Unless licensed thereto under the provisions of this ordinance, no manufacturer or wholesale dealer shall, on and after the first day of November, 1917, and no retail dealer shall, on and after the first day of December, 1917, offer for sale in Canada any foods known as breakfast foods, or cereals, or flour or other foods which are the product of wheat, oats, barley, rye, rice, peas, beans, buckwheat, Indian corn (maize) or lentils in original packages of less weight than 20 pounds."

And, Whereas by said Order it was ordered that the Food Controller shall have the power to grant licenses, in such form and upon such terms and conditions as he may prescribe, for the sale of any such foods in original packages of such lesser weight or size as he may deem expedient, and may by written order exempt from the provisions of the said ordinance any particular class or classes of persons, communities or places during such period or periods as may be prescribed in such order, and may from time to time revoke or change any such order;

And, Whereas it is advisable in the public interests to make the following order:

1. Therefore I do hereby order that in the Dominion of Canada all manufacturers or wholesale dealers of the food products or commodities mentioned in the said Order in Council shall be, and they are hereby exempted from the operation of said order until the thirty-first day of December next ensuing the date hereof;

2. That all retail dealers of the food products or commodities mentioned in the said Order in Council shall be, and they are hereby exempted from the operation of said order until the thirty-first day of January next ensuing the date hereof.

Dated at Ottawa, this 24th day of October, A. D. 1917.

W. J. Hanna, Food Controller.

Advertised Foods Boosted.

"Advertised Foods Week" was a feature staged by the Chicago Advertising Association recently in Chicago. Advertised brands of food were exploited on the daily menu and short talks were made by representative food advertisers. George L. Green, Chicago representative of the Shredded Wheat Company, told how advertised foods in packages are less affected by increased costs than are non-advertised products. Mr. Green deprecated the possibility that the Government might advocate bulk foods in preference to packaged foods. Such a move, it was pointed out, would upset quality standards and would have a tendency to discredit established pure-food laws.

How Some Manufacturers Are Answering the Call for Greater Production.

Much has been said with reference to increasing the production of food products this year and ensuing years, to meet the increasing demand for food which must be supplied the war-ridden nations of Europe by the United States.

We realize that in most of the European countries at war the production of foods has been considerably reduced and even after the war certain of those countries which have served as battlefields will be unable for some time to put their lands in a tillable condition.

Considering the quantities of certain food products imported into the United States prior to the European war, which are now impossible to import, one can readily appreciate the task before us—that of making up this deficiency as well as supplying large quantities to Europe to make up for their lack of production.

Many suggestions have been made as to how the demand for food products can best be met. One of the most practical steps, however, has been taken by Libby, McNeil & Libby, one of the largest food product manufacturers in the world.

In order to bring the necessity of increasing the supply of raw materials to the attention of the farmers, meetings were held at all towns in which their milk condensaries are located, and a discussion of practical methods of assisting the farmers developed that many of them were not in position to increase the acreage under cultivation.

Therefore, the company offered to put in, wherever required, tractors and men to operate them. This not only gives the farmers an opportunity to increase the acreage under cultivation, but to better fertilize and prepare the soil for the crops, which, of course, means greater yields.

The work is done for the farmer at actual cost, which in many instances is less than the cost at which he could do the work. The eagerness with which the farmers have grasped this proposition is best shown by the enormous acreage being plowed by the tractors now operating in the vicinity of the company's condensaries.

At the meetings held in the various towns, field experts in the employ of the company instructed the farmers how to obtain the maximum results from their efforts, emphasizing the importance of utilizing and taking advantage of everything in order to produce the maximum crops this and future years.

One of the points brought forcibly to the attention of the farmers was the importance of planting green crops for feeding stock during the months of July and August when pastures are usually poor and the milk supply decreases. Some of the most suitable crops for this purpose are oats and field peas, which can be fed advantageously during the month of July, and sweet or 90-day corn which can be fed to the stock during the latter part of July and the month of August.

Many of the local markets are this year unable to supply the farmers with the seed they require; therefore, Libby, McNeill & Libby offered the services of their purchasing department to buy for the farmers seed of all kinds at cost.

In order to carry out the work outlined at the meetings, a committee was appointed in each community, comprised of farmers, business men and the local milk condensary superintendent. This committee acts as a clearing house for all difficulties which confront the farmers in the vicinity, arranging to procure for them if necessary, labor, seed, use of tractor, etc.

The farmers and business men of the various communities in which the meetings were held manifested great interest and are heartily supporting the plan. The results so far obtained prove conclusively that the plan is very satisfactory and beneficial. The farmer's duty to the country in this crisis has been pointed out. He is willing and ready to respond, appreciates any assistance rendered him, and will make his farm the battlefield on which one of the greatest, if not the greatest, "battle" of the present world war will be fought and won.

The great service which Libby, McNeill and Libby is performing is worthy of every endorsement and is but an example of the co-operation which the big industries of this country are ready and anxious to give.

Don't Buy Water-Logged Poultry.

"When you buy poultry which is packed in ice, you probably are paying poultry prices for from 3 to 14 per cent of water soaked up by the bird," according to a statement issued by the U. S. Department of Agriculture. "This means paying from 25 to 50 cents a pound for from 3 to 14 pounds of water in every hundred pounds of chicken purchased.

"Moreover, a broiler allowed to soak in water or ice will lose about 1.3 per cent of its edible substance, while roasting chickens and fowls lose as much as 1 per cent. Along with the edible material, water dissolves and washes out from the bird substances on which the fine flavor of the flesh largely depends.

"The purchaser will do well to insist on buying dry-packed and dry-chilled birds. It is always advisable to see the package in which the butcher received the chickens. High-grade dry-packed, dry-picked birds are commonly sent to market in boxes, not in barrels. Twelve birds are packed in a box which is neatly lined with white parchment paper. Each individual head is wrapped in paper. The feet of the birds are clean and the entrails are always in place. Wet packed chickens are shipped to market in barrels holding 200 pounds or more. The birds in the bottom of the barrel soak in water that is filthy with dirt washed down from the feet and heads by the melting ice.

"Many persons who have found a bird dry and without flavor attributed this lack of quality to cold storage, whereas the probability is that wet packing is responsible. * * * Usually cold-stored poultry which is thawed in the dry, cold air of the ice box is much superior to the water-logged so-called "Fresh Chicken."

Home Economics and the Hotel Business.

In an address before the Hotel Men's Association of Ohio, Edna N. White, head of the Home Economics Department of Ohio State University, takes the view that the average hotel menu is defective both from a financial and a dietetic standpoint in furnishing too much meat, and not enough vegetables. She believes that the hotel men would do well to pay more attention to the work of the domestic science departments. Her criticisms were in part as follows:

"For many years hotel men have been spending their energy in educating their public to make the wrong kind of demands. They have vied with one another in offering inducements to their customers to order lavishly of expensive materials until the situation has become ruinous. In a recent discussion by Dr. Langworthy, government food expert, on selection of diets, meals were divided into the hotel type and the family type. The first is characterized by the large proportion of meat and the latter by the large proportion of fruit and vegetables. Aside from the question of relative expense, the question of personal welfare would lead to the selection of the latter type. But for years all hotel menus have been built on this idea of making meat the important item, the other things being merely incidental. Since fruits and vegetables are considered merely incidental, little attention is given to their preparation, and in consequence it has become proverbial that in the ordinary hotel the vegetables are almost uneatable.

"Now, it will be no small feat to re-educate your public, but I venture to predict that it will have to be done. That it can be done is shown by the greatly decreased consumption of meat in the ordinary home, due undoubtedly to the agitation by nutrition experts against the excessive amount of meat in the ordinary American dietary.

"Anyone who has ever visited Battle Creek can testify to the great interest taken by their guests in selecting their diet according to the suggestions offered by their dietitians. Guests of this institution seem to regard this unique method as some new and interesting game which they are eager to learn. One of the northern railroads offers a menu each day which they advertise as well balanced, and the dining-car directors have testified to its popularity with the public.

"As a whole, the policy of hotel tables has been largely determined by the part of its public that indulges in loud-voiced complaints. There is, in addition to this patronage, a large proportion of quiet people who are not complainers and they quietly go to simpler places whenever possible. A study of the places that have been conspicuous successes from a financial point of view is rather illuminating. In very few instances have they been places where high prices and elaborate service prevailed. Simple dishes at moderate prices bring numbers, thus reducing relatively the cost of operation and service. Many of these places have departments where surplus prepared food is sold in order to avoid the deterioration due to carrying food materials over. This plan has been successfully worked out in one hotel of which I know."

Food Reviews

TIDBITS—Put up by Armour & Co., Chicago, Ill., for $4.

This opportune package of Tidbits for the soldier or sailor boy's Christmas, packed for safe shipment to French trenches or American training cantonments, has been prepared by Armour & Co. of Chicago. Well packed in a carefully finished, hinged-cover pine box which in turn is inclosed in a shipping carton, and the carton fitted into a substantial wooden box, Tidbits at first glimpse is enough to make anybody wish that he, or even she, were privileged to inhabit a trench and receive such a Christmas greeting. As might have been expected, Armour & Co. have attempted to give a satisfying and tempting array of toothsome dainties rather than the maximum number of calories for the money invested. The items in a $4 collection are as follows:

Item.	Weight Oz.	Approximate Calorie Value.*
Wafers, with sugar filling........	2¾	411
Cheese, American Cheddar	8	1000
Honey, strained	5	455
Tuna, canned	7	250
Chocolate, sweetened	8	1170
Dates	10	909
Strawberry preserve	8	635
Pineapple preserve	8	562
Orange marmalade	8	775
Chicken, canned	6½	722
Bouillon cubes	3	150
Peanut butter	5	833
Total		7872

NON-EDIBLES.

Toilet soap.
Shaving soap.
Tooth paste, tube.
Gum, 5 packages.
Envelopes, 15.
Pencil.

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*Based upon Rose's "Feeding the Family," and Tibbles' "Foods: Their Origin, Composition and Manufacture."

California "Butter Merger" Swindle.

Through the efforts of the Bureau of Foods and Drugs of the California State Board of Health, an indictment was recently returned in San Francisco against a man charged with falsely advertising and demonstrating a device called a "butter merger" at the San Francisco Land Show.

The demonstrations indicated that the "butter merger" would make two pounds of butter from one pound of butter and one pint of milk, in other words, butter worth $1.10 from butter worth 55 cents and milk worth 7 or 8 cents. The director of the Food and Drug Laboratory testified that the commercial standard for butter requires 80 per cent butter fat and that the product made by the "butter merger" contained less than 50 per cent of butter fat, the remainder being made up of water with small amounts of caseine, milk sugar and other milk solids, and was therefore essentially a watered butter. It was also pointed out that it was inconceivable that a pound of butter could be made out of a pint of milk which contained only 3 per cent of butter fat.

The defendant was found guilty and sentenced to a fine of $250 or 250 days in jail.

Other agents are still selling this "butter merger" in California, and the state is making every effort to warn people against them, as well as to find the agents themselves.

Proceedings of the Food and Drugs Section of the American Public Health Association War Meeting.

The war meeting of the American Public Health Association was held in Washington from October 17 to 20. The Food and Drugs section, to which one session was devoted, though but recently created, is in a very flourishing condition with a membership of over 300.

Among the speakers was Mr. Lotion Horton, president of the Sheffield-Farms S. D. Milk Company of New York City, who said that the demand for milk has fallen off 10 per cent, and advocated a campaign to educate the public to eliminate the cost of delivery by the extension of milk stores.

Dr. E. V. McCollum, professor of physiological chemistry at Johns Hopkins, Baltimore, spoke on the influence of heat on growth-promoting properties of food, pointing out the necessity of having the diet contain a portion of the growing parts of plants in which vital forces are functioning, and not the dead parts, which are the seed. He said that after investigating the whole animal kingdom he could not find any animal which lived on an exclusive diet of seeds, and that a diet ample in amount may utterly lack certain essentials.

Mr. Frank A. Horne, president of the Merchants Refrigerating Co. of New York City, discussed the use and possibilities of cold storage and its present entire inadequacy for the needs of the country.

Mr. Henry Burden, president of the National Canners' Association, spoke of the tremendous waste of foods due to lack of a tin supply.

The place of poultry in war-time conservation, almost as a by-product of the table, and the use of back lots as poultry yards, was discussed by Dr. Raymond Pearl of the Federal Food Administration. Dr. Pearl suggested that the present crisis justified a change in city ordinances which prohibit this practice, and that, in any case, by keeping such lots clean the principal objections would be removed.

Dehydration was considered by Dr. Clarence V. Eckroth and Mr. Lucius P. Brown of the New York City Department of Health. Mr. Brown stated that before the war Germany had 450 dehydrating plants, and that this country's lack of demand has been due to two facts: generally, the proper kind of product has not been produced; and where it has been, no attempt has been made to extend its use. The scarcity of tin makes the present time ripe for the cultivation of a taste for dried products. According to Mr. Brown, the French use them in soups and stews and the difference from fresh vegetables cannot readily be detected.

New Officers for Flavoring Extract Manufacturers' Association.

The Flavoring Extract Manufacturers' Association recently elected as their officers for a new year: F. P. Beers of the C. L. Cotton Co., Earlville, N. Y., president; Charles D. Joyce of A. Colburn Co., Philadelphia, R. E. Heekin of the Heekin Spice Co., Cincinnati, and L. B. Parsons of Seeman Bros., New York City, as vice presidents; Gordon M. Day of the Day-Bergwall Co., Milwaukee, secretary; F. A. Ross of Stickney & Poor Spice Co., Charlestown, Mass., treasurer; and Thomas E. Lannen, Chicago, attorney.

Book Reviews

PRACTICAL DIETETICS WITH REFERENCE TO DIET IN HEALTH AND DISEASE.—By Alida Frances Pattee, Graduate the Department of Household Arts, State Normal School, Framingham, Mass. Late Instructor in Dietetics, Bellevue Training School for Nurses, Bellevue Hospital New York City, etc. Eleventh Edition, Revised and Enlarged. A. F. Pattee, Mount Vernon, N. Y., February, 1917. 550 pp. Diagrams, tables. $1.75.

This work, a text-book for nurses studying dietetics, is too well known and too generally accepted as an authorty in its field to need much comment on its eleventh edition. It is accompanied by a pamphlet giving outlines of the various state board requirements in dietetics and the outlines and courses of study arranged by the American Hospital Association and the state boards of examiners of nurses, together with all answers to questions. Part 1 deals with principles of nutrition, Part 2 with their practical application in recipes, and Part 3 with diets of all sorts.

Herself a nurse and for many years a teacher of nurses, the author is well qualified to speak with weight on the subject of dietetics. It is her design to teach the science of the chemical basis of cookery rather than merely the superficial conforming to various generalized formulae in recipes, believing that with greater accuracy and care greater success will result, and that so the cook will serve the chief aim of every science, the comfort and happiness of human beings. The book is illustrated with frequent tables and diagrams; it is extremely detailed and complete. Theory and practice are combined, with the accent always on nutrition. Each recipe is accompanied by its calory value and tables show the food values of the most common foods. The latest diets of the leading physicians and hospitals of the country are included, making the book of great value to the housekeeper and to the institutional restaurant manager as well as to the nurse.

HEALTH FIRST: THE FINE ART OF LIVING. By Henry Dwight Chapin, M. D., Professor of Medicine (Pediatric Department), at the New York Post-graduate Medical School and Hospital. The Century Co., New York, August, 1917. 231 pp. $1.50.

Dr. Chapin, an authority on children's diseases, who has published several books on that subject and contributed articles to prominent magazines, has written this book as a "First Aid to the Well," as "preparedness for life," agreeing with Herbert Spencer that "the preservation of health is a *duty*." Out of the 1,200,000 deaths in America every year probably 42 per cent are preventable; good health is not an accident, but a "purchasable commodity" for which we must be willing to pay the price. That health is the most vital of all subjects for the individual and for the race is being recognized more and more.

Dr. Chapin follows the child's physical development from before birth, through school days and maturity, to old age, taking up in turn the problems of nutrition, disease, the effects of different seasons and environments, and by no means least, the relation of happiness to health. He points out the dangers and the merits of mental healing, from the points of view of the individual and the interdependence of the community.

Dr. Chapin does more than write his views of the importance of a good start in life. He lives them. Into his New York home he takes, one after another, babies unfairly handicapped by sickness or environment and starts them along the road to useful, happy lives, with a trained nurse to care for their bodies, and his wife, to whom he has dedicated this book, to mother them. His theory is practice, and whoever is willing to pay the price may find in his book the way to a fuller and more abundant life.

ELEMENTS OF THE THEORY AND PRACTICE OF COOKERY, A TEXT-BOOK OF DOMESTIC SCIENCE FOR USE IN SCHOOLS. —By Mary E. Williams, Late Director of Home Economics in the Public Schools of New York City and Director of the Department of Home Economics in New York University, and Katharine Rolston Fisher, Formerly Instructor in Home Economics in the Public Schools of New York City. New Edition, Revised and Enlarged. The Macmillan Co., New York, 1916. 405 pp. 16 plates, 28 charts and figures. $1.00.

First published in 1901, this text-book for grammar school use has met such continued popularity that constant new editions have been brought out. This edition is carefully revised up to date. The authors stress throughout the fact that they are not trying to compose a cook-book pure and simple, but to correlate "household science" with the other studies of sixth and eighth grade children. The book is admirably adapted to children of these ages; it is interesting and its scientific chemical experiments appeal to the students. No elementary details of the right way to do housekeeping are forgotten.

The book does not attempt to teach by any particular method, but is intended to be equally useful to the single pupil and to the group. Whenever a new subject is taken up, practical work precedes theory; classifications and general statements are left until later, when the pupil shall have learned fundamentals. The matter of cleaning is especially emphasized, with a view to the proper care of the school kitchen, as well as because of its innate importance. The book is sane, solid, explicit, clearly written, not too technical. Such chapters as that on meat, describing the various cuts of different animals, illustrated by photographs and diagrams, are particularly admirable. Explanations of the values of foods, food preservation, diets for the family, the baby, and the invalid, table service and the laundry, with a final chapter on the process of digestion, accompanied by a table of food calories, make the book well worthy of study by the housewife as well as by her small daughter.

American Sugar Refining Company Organizes New Department.

The American Sugar Refining Co. has announced the organization of a Manufacturers' Division of its general sales department. In connection with this division has been formed a Service Bureau equipped with chemists, expert candy makers and bakers, where any manufacturer having difficulty with his product or seeking to improve or broaden his line may have expert help for the asking.

Mr. Hoover Authorized to Requisition Foods and Feeds.

Executive Order.

Under and by virtue of an act of Congress, entitled "An act to provide further for the national security and defense by encouraging the production, conserving the supply, and controlling the distribution of food products and fuel," approved August 10, 1917, I, Woodrow Wilson, President of the United States, hereby authorize and direct Herbert Hoover, United States Food Administrator, from time to time, to requisition any and all foods and feeds, and storage facilities for the same, that said Herbert Hoover, United States Food Administrator, may deem are necessary for any public use connected with the common defense, other than the support of the Army or the maintenance of the Navy, and to ascertain and pay a just compensation therefor.

Done in the District of Columbia, this twenty-third day of October, in the year of our Lord one thousand nine hundred and seventeen, and of the independence of the United States of America, the one hundred and forty-second.

WOODROW WILSON.

Bread Price Fixed.

A proclamation by the President has put all bakeries under license from December 12 and established standardized bread in weight and ingredients.

It is expected that by these regulations the retail price will drop to 7 or 8 cents a pound, and there will be an annual saving of 100,000,000 pounds of lard, 100,000,000 pounds of sugar and 600,000 barrels of flour.

The new loaf will be one pound, one and one-half pounds, or two or four pounds. No other sizes will be permitted and the weights are to be determined after the loaf of bread has stood 12 hours. Three instead of six pounds of sugar to a barrel of flour will be allowed and two pounds of vegetable oil shortening must be used instead of six pounds of lard or oil.

"Soaking" Scallops in Violation of Food Act.

With the opening of the scallop season, shippers of the sea food are being warned by officials in charge of the Food and Drugs Act that it is unlawful to ship in interstate commerce scallops which have been soaked in fresh water, whether the soaking is a deliberate attempt to increase the volume and weight of the mollusks or whether it is only incidental to washing operations. Even leaving the scallops in fresh water for a few minutes as when they are shucked into a pail of water will almost inevitably result in a change in condition which the food officials will hold constitutes adulteration.

The swelling of scallops during washing can be prevented easily, the officials point out, by using for this purpose clean, natural sea water or a brine made by dissolving 2 to 2½ pounds of common salt in 10 gallons of fresh water. The mollusks should be drained carefully after washing, since the presence of a material amount of free liquid is regarded as constituting adulteration.

The officials do not confine their activities to the issuance of warnings and the making of seizures, but, through field inspectors, advise and instruct shippers of scallops how to conduct their operations so as to comply with the law.

Western Food and Drug Officials Meet.

Federal, State and city food, drug and sanitary officials in the west held a convention in Salt Lake City from October 22 to 24, inclusive, to discuss the advisability of organizing a western district.

After deciding to do this, the convention discussed informally problems common to western state officials and questions of co-operation among state commissioners and between the state commissioners and Federal food and drug officials. William W. Ray, U. S. Attorney for the Salt Lake district, spoke on the enforcement of food and drug laws, and the method of presenting and prosecuting in the courts.

The following officers were elected for the coming year: S. C. Dinsmore, Nevada, president; Walter M. Boyden, Utah, vice-president; E. J. Lea, California, secretary; W. M. Boyden, Maurice Groshon, Wyoming, John K. White, Idaho, executive committee. California was selected for the June, 1918, meeting.

New Meat Division Head.

J. P. Cotton of New York has been appointed head of the meat division of the Food Administration, with headquarters in Chicago. Mr. Cotton will be assisted by advisory committees on hogs and cattle, and a packers' committee consisting of representatives of important packing houses throughout the country.

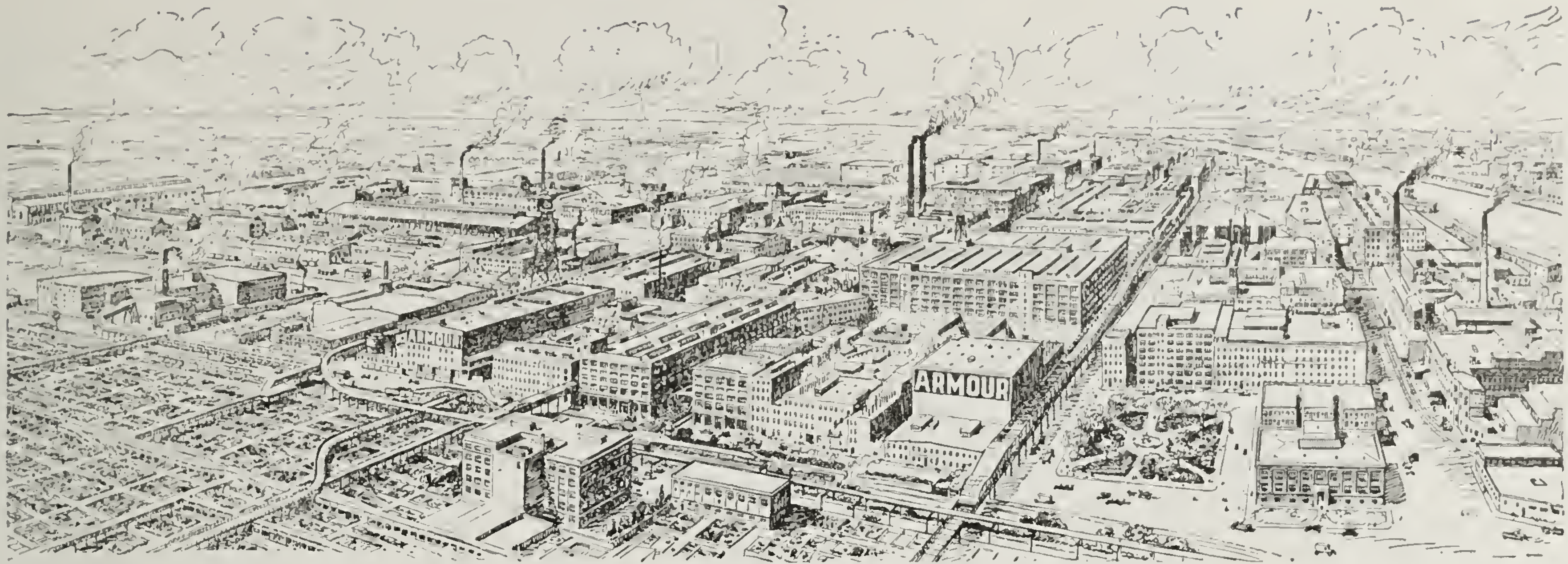
Applications for the Export of Butter and Other Fats.

The War Trade Board has announced that since the West Indies, Central America, Mexico and a number of the nearby South American countries have been dependent on the United States for many years for their butter and lard, lard compounds, cotton seed oil and other edible fats, and since the entrance of the United States upon the world war has worked a hardship upon these countries, due to the necessity of conserving our edible fats for our own use, export licenses will be granted when the evidence submitted with the applications so justifies.

In making this announcement the Board further states that it will now consider first the original applications for licenses to export such edible fats, which had been refused, provided shippers re-apply. Exporters, therefore, are informed that they may re-apply, giving particulars and dates of their first application, and be assured that such applications will be passed upon favorably whenever the evidence submitted with them is sufficient to justify the granting of licenses.

Export Licenses for Small Shipments of Sugar.

The War Trade Board has announced that it has found exporters in the United States in many cases seeking to take advantage of the regulation permitting the exportation of 25 barrels of sugar or less in any single shipment without requiring individual licenses. The Board states that it has known for some time that a few exporters were doing this, but thought that by reminding these exporters of the fact that they were making themselves amenable to the law, the practice could be discontinued. This has not been the case, however, and until otherwise ordered by the Board, no shipments of sugar, except to Canada and Newfoundland, will be allowed to leave the country without a specific export license for each shipment.



ARMOUR AND COMPANY'S CHICAGO PLANT

IN uncertain times like the present, the importance of a trade-mark on foods takes on increased significance. For, it definitely fixes the responsibility for their origin and, by putting back of them the reputation of their manufacturers, becomes an assurance to consumers of sustained quality. The Armour Oval Label has behind it the jealously guarded Armour reputation of fifty years' standing—far too much at stake for the future to permit of anything but the very highest grade being sold under it.

Armour's QUALITY PRODUCTS

ARMOUR AND COMPANY
UNION STOCK YARDS, CHICAGO

1648

Federal Food Administrators.

ALABAMA—Richard M. Hobbie, Montgomery.
ARIZONA—Timothy A. Riordan, Flagstaff.
ARKANSAS—Hamp Williams, Hot Springs.
CALIFORNIA—Ralph P. Merritt, San Francisco.
COLORADO—Thomas B. Stearns, Denver.
CONNECTICUT—Robert Scoville, Hartford.
DISTRICT OF COLUMBIA—Clarence R. Wilson, Washington.
KANSAS—Dr. Henry J. Waters, Manhattan.
FLORIDA—Braxton Beacham, Orlando.
GEORGIA—Dr. Andrew M. Soule, Athens.
HAWAII—J. F. Childs, Honolulu.
ILLINOIS—Harry A. Wheeler, Chicago.
INDIANA—Dr. Harry E. Barnard, Indianapolis.
IOWA—J. F. Deems, Burlington.
KENTUCKY—Fred M. Sackett, Louisville.
LOUISIANA—John M. Parker, New Orleans.
MAINE—Leon S. Merrill, Orono.
MARYLAND—Edwin G. Baetger, Baltimore.
MASSACHUSETTS—Henry B. Endicott, Boston.
MICHIGAN—George A. Prescott, Tawas City.
MINNESOTA—A. E. Wilson, Minneapolis.
MISSISSIPPI—P. M. Harding, Vicksburg.
MISSOURI—Frederick B. Mumford, Columbia.
MONTANA—Professor Alfred Atkinson, Bozeman.
NEBRASKA—Gurdon W. Wattles, Omaha.
NEVADA—Henry M. Hoyt, Reno.
NEW HAMPSHIRE—Huntley N. Spaulding, Concord.
NEW JERSEY—James F. Fielder, Jersey City.
NEW MEXICO—Ralph C. Ely, Santa Fe.
NEW YORK CITY—Arthur Williams.
NORTH CAROLINA—Henry A. Page, Aberdeen.
NORTH DAKOTA—E. F. Ladd, Fargo.
OKLAHOMA—Dr. Stratton D. Brooks, Norman.
OREGON—W. B. Ayer, Portland.
PENNSYLVANIA—Howard Heinz, Philadelphia.
PORTO RICO—Albert E. Lee, San Juan.
RHODE ISLAND—Alfred M. Coats, Providence.
SOUTH CAROLINA—David R. Coker, Columbia.
SOUTH DAKOTA—Charles N. Herreid, Aberdeen.
TENNESSEE—Thomas Bragg, Montgomery.
TEXAS—E. A. Peden; Houston.
UTAH—W. W. Armstrong, Salt Lake City.
VERMONT—James Hartness, Springfield.
WASHINGTON—Charles Hebberd, Spokane.
WEST VIRGINIA—Earl W. Oglebay, Wheeling.
WISCONSIN—Magnus Swenson, Madison.
WYOMING—Theodore C. Diers, Sheridan.

First Export License to Amundson.

The first license issued by the Exports Administrative Board, on September 20, authorized a shipment of foodstuffs to the North Pole by Captain Raoul Amundson, the explorer.

Staff Correspondence

Washington, D. C.

FOOD ADMINISTRATION ACTIVITIES.

Food saving is a good deal more than personal co-operation in the wheatless Wednesday and the meatless Tuesday—more than any war-time measure, useful though that may be. It is affecting every agency for the production, manufacture and distribution of food and bringing better conditions which must be permanent.

For instance, here are six great national economic reforms which the Food Administration finds necessary to war-time food conservation, and is carrying out, and these are only a few among many:

First. Farmers must be organized in marketing associations to a far greater extent than has ever been possible heretofore.

Second. Farm commodities, such as potatoes, must be standardized by grading, and duplicate marketing machinery eliminated.

Third. The South is being brought to feed itself.

Fourth. Better trade methods of buying eggs, which can be developed under the Food Administration, will eliminate a million-dollar-a-week loss in that commodity.

Fifth. The railways are being encouraged to apply sound, technical information to standardize refrigerator cars, doing away with loss to perishable foods in transit.

Sixth. The demand for fats is building up a new agricultural industry, a better balanced scheme of farming in the production of peanuts, soy beans and similar crops.

Not only in these lines, but in many others as well, has the Food Administration already accomplished a great deal.

Conferences have been held in the last month with the label manufacturers to ascertain the cause of reported delays in shipments of labels to canners; with the corn products men on methods for utilizing cornstarch, corn syrup and corn oil in place of wheat, sugar and fats, and with the National Retail Grocers' Association. At the latter meeting, 360,000 retailers throughout the country pledged co-operation with the government. Among resolutions passed at the meeting were the following: to permit profits no greater than prevailed under normal conditions, to limit deliveries to one daily on each route, to discontinue soliciting orders, to institute co-operative deliveries wherever possible, to make efforts to sell less expensive foods and wholesome substitutes for wheat flour and meat, to sell by weight in large quantities and for cash whenever possible, and to push the potato campaign of the Administration.

On October 12 conference was held with egg shippers, in an effort to save the $50,000,000 worth of eggs wasted yearly in this country. Recommendations were made that candling should be done before the eggs were bought by shippers, that eggs should be chilled to 60 degrees Fahrenheit as soon as possible after purchase, that all cracked and second-grade eggs should be removed before shipping, and that standard shipping cases should be used.

Representatives of the American Association of Refrigeration and the cold-storage section of the American Warehousemen's Association also conferred with the Food Administration on the extension of cold storage houses and their regulation. The new license system, which covers cold storage houses, practically duplicates the various state laws on cold storage, requiring in addition that warehouses must be classified as "public" or "private," and if they store foods on their own account must be licensed also as dealers.

The corn and oat milling and corn products industries pledged their support to food conservation plans in a series of conferences during the month. Produce delegates from the National Poultry, Butter and Egg Association and the American Association of Creamery Butter Manufacturers, as well as from many other associations, upheld the Food Administration's policies and conferred on the best methods for aiding them. The American Specialty Manufacturers' Association, controlling the major part of the country's output of package goods, such as cereals, patent breakfast foods, baking powders, flavors, etc., pledged itself to lend the services of 40,000 salesmen to distribute cards to retailers, helping the food conservation campaign.

The transportation committee of the Food Administration has been able satisfactorily to adjust the differences between the express companies and the oyster and fish shippers regarding the recent order issued by the express companies which the shippers claimed was ruining their industry.

The express companies a short time ago, on account of delays to passenger trains carrying express matter and to express trains because of the abnormal demands upon them decided as a precautionary measure to stamp on each shipping ticket: "Subject to delay account of congestion." What they were seeking to do was to get away from liability for failure to reach the distant market at a certain hour in the day rather than to escape responsibility for damage due to their own negligence.

The transportation division has also taken hold of the question of moving crops. It requested California railroads to discontinue loading barley, in order to handle more important crops. The Washington apple crop, the Idaho apple and potato crops, and New York's crop of grapes have received special attention. But of vital importance has been the handling of the live stock situation. The terrible Texas drought caused an appeal to the authorities at Washington for cattle cars in which to move the stock which were dying by hundreds. About 1,500 cars were requisitioned at once, and the cattle shipped out of the state. Latest reports state that the drought conditions are spreading into New Mexico, and that additional cars will be requisitioned at once. The State Railroad Commission of Texas has sent the Administration an expression of gratitude on behalf of the people of the state.

An agreement has been reached with regard to handling the Pacific northwestern wheat. The base price of $2.05, No. 1 northern, or equivalent, at Portland, Seattle and Tacoma for bulk wheat, with usual premium for sacked wheat, was decided on as the result of assistance from the Shipping Board assuring overseas transport and making it possible to make a base price at north Pacific export coast points on an over-seas basis instead of the previous footing of a price based

Staff Correspondence

on rail transport to Chicago. The California wheat situation has received much attention. The difficulties arise from the fact that California is an importing wheat state, that the freight differential of 62½ cents off Chicago, the declared base of Government wheat price, works harder on California than any part of the country; that the Pacific northwest base has been fixed at $2.05 per bushel; that Australian wheat and flour is available at less than the base price in any event; and that the Federal grading act gives rise to complaint from growers of wheat below No. 3 grade.

As a result of a compromise between all of these difficulties the Administration has determined that the Government price shall be $2.10 per bushel bulk wheat San Francisco and Los Angeles, and that all wheat below No. 3 grade will be bought on sample.

Reports of an agitation for the suspension during the war of the Grain Standards Act and the grading system established under that Act have resulted in an announcement by the Department of Agriculture and the Food Administration that the Act will not be suspended, but that on the contrary the two departments "will co-operate in carrying out its provisions so as to obtain the most beneficial results to all concerned." Purchases of wheat controlled by the Food Administration Grain Corporation will be made "according to the grades of the official grain standards of the U. S. from No. 1 to No. 3, and below No. 3 after examination of actual samples of the wheat."

To relieve the wheat shortage, arrangements have been made with the Canadian food controller for the shipping of large supplies of Canadian wheat via the Great Lakes to eastern mills. Consequently the Minneapolis and northwest mills, where milling was reduced to 60 percent capacity to allow wheat to be moved east, are again running at 100 per cent capacity. Canada has fixed the government purchase price for wheat at the same price as in the United States. The U. S. Food Administration has denied reports that it will alter the U. S. price under any conditions.

The Federal Trade Commission has been holding hearings on the question of price maintenance. The jobbers claim that a standard price is necessary to protect manufacturers, jobbers, distributors, and the public through the new license system regulating speculation; it is expected that the resale of canned goods, about which the Commission has received special complaints, will be prevented. The sale of futures in canned peas, corn, tomatoes, salmon and sardines before February 1 is prohibited by special regulations, and the selling of over 75 per cent of the normal supply expected is forbidden at any time. In regard to cotton seed and its products, the Administration announces that speculation still continues and warns speculators that they are plainly violating the law.

The Administration expects to keep a tight rein on profiteering retailers through the provision incorporated into the license system prohibiting the sale of food by manufacturers or wholesalers to any retailer who makes unfair profits or attempts to speculate in foods. Thus the retailer, though exempted from the necessity for obtaining a license, is yet by no means free from Federal control.

Canners representing 90 per cent of the Maine sardine canning industry have voluntarily agreed to reduce their price to $5.60 per case of 100 cans for the

Five-Cent Breakfasts
Based on Quaker Oats

Make Quaker Oats the central dish at breakfast. It costs one-eighth as much as eggs per unit of nutrition.

Quaker Oats, prunes, toast and coffee, with all garnishments, can easily be served for five cents. And oats supply, ounce for ounce, about twice the nutrition of beefsteak.

One 12-cent package of Quaker Oats contains about as much nutrition as the average person needs in a day.

The average mixed diet costs four times as much as Quaker Oats per unit of nutrition. So each dollar spent for Quaker Oats saves you about $3.

Also use Quaker Oats in bread and muffins, in cookies and pancakes. It adds delightful flavor. And no other grain can match the oat as an energizing nutrient.

Your table may cost even less than it used to if you liberally use Quaker Oats.

Quaker Oats
The Supreme Food Made Delicious

The world-wide fame of Quaker Oats is due to a matchless flavor. These flakes are made from queen grains only — just the big, rich, luscious oats. We get but ten pounds from a bushel.

So here is Nature's greatest grain food with the maximum of flavor. And it costs you no extra price.

Oat food is nowadays doubly important because of its economy. So it is doubly important to get Quaker Oats, to make oat food inviting.

12c and 30c per package in United States and Canada, except in Far West and South, where high freights may prohibit

An Aluminum Cooker for $1.00

Made to our order, extra large and heavy, to cook Quaker Oats in the ideal way. Send us our trademarks—the picture of the Quaker—cut from the fronts of five Quaker Oats packages, or an affidavit showing the purchase of five packages of Quaker Oats. Send $1.00 with the trademarks or affidavit, and this ideal cooker will be sent to you by parcel post prepaid. We require the trademarks or affidavit as assurance that you are a user of Quaker Oats. The trademarks have no redemption value. This offer applies to United States and Canada. We supply only one cooker to a family.

Address The Quaker Oats Co., 1708 Railway Exchange, Chicago (1734)

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Made in modern sanitary bakeries from highest grade materials and by the most advanced and scientific methods known to the industry.

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Carnation Milk

Is Pure Milk

Carnation Milk is just clean, sweet cows' milk evaporated to the consistency of cream, hermetically sealed in cans and sterilized. Nothing is added—nothing taken out but part of the water.

Use Carnation Milk in making soups; for cooking, baking, drinking and every other milk use. To reduce its richness add pure water.

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"The Story of Carnation Milk," our free, illustrated recipe book, contains over 100 recipes for plain and fancy dishes. Sent free to *you* upon request. Carnation Milk Products Company, 1165 Stuart Building, Seattle, Wash.

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"From Contented Cows"

Staff Correspondence

one-fourth size in oil and keyless cans; $6.10 per case of 100 cans for one-fourth key cans in oil; and $5.60 per case for three-fourths size, packed with mustard. All in standard decorated cans with the usual differentials for goods in wrappers or in cartons. They have agreed to maintain prices not only on their present stocks, but on the pack yet to be made, in spite of the fact that the remainder of the season will show increasing costs.

The milling division of the Food Administration has announced that all flour for export hereafter to neutral countries must be handled only through its agency. This new ruling has been made so that the control of the supply to neutrals shall be regulated through the hands of one central medium, in order to insure that no neutral country gets a larger minimum supply than we or our Allies get.

As a part of the regulations governing milling, no flour mill operating under agreement with the Administrator is permitted after December 1, 1917, to sell flour in other than one-eighth, one-quarter, one-half barrel or larger packages; and on and after January 1, 1918, no mill is permitted to ship flour in packages other than those described.

Hearings on the price maintenance question have again been extended by the Federal Trade Commission, to November 14. The last session was confined almost entirely to testimony of advocates for price standardization, and the Commission has announced that at least half of the next hearing will be given over to the other side.

Manufacturers of canned milk representing 95 per cent of the entire industry in the United States in conference with the Food Administration agreed unanimously to take no war profits, but to make the profit on their goods sold to the public the same as that on goods sold to the Army and Navy.

Since the 1st of May they have been furnishing supplies to the Army and Navy at a price and on a basis of profit determined by the Federal Trade Commission. This they obligate themselves to continue throughout the war, and agree to supply the commission for relief in Belgium and the American Red Cross at the same price as that made to the Government.

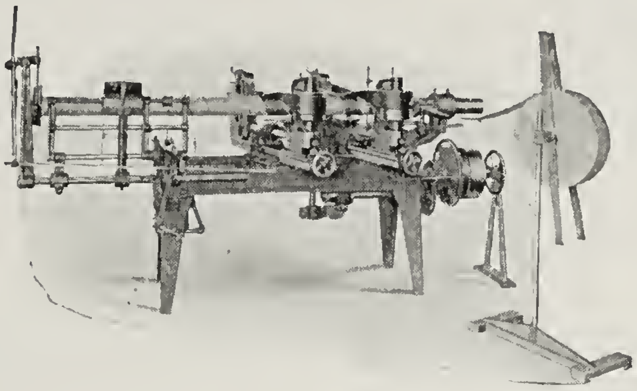
EXPORT LICENSE NEWS.

The license bureau has announced that a special license will be granted through the Customs Service covering shipments through the United States en route from one Canadian point to another, or from one Mexican point to another.

Some confusion has resulted from the fact that steamship companies have refused to accept shipments requiring an export license where they were not certain that the ship would be able to clear before the date on which the license expired. This has been remedied by instructions being given to consider the date of the ocean bill of lading as the date of shipment, and if there should be delay in the issuance of that document, to consider the dock receipt as the governing date.

The confusion was due to the warning issued to owners of grain elevators against loading vessels for export before the skipper procured the required license.

ROUND PAPER CAN MACHINERY



SAMUEL M. LANGSTON COMPANY

CAMDEN, N. J., U. S. A.

CANADIAN FAIRBANKS-MORSE CO., Agents for Canada

Arizona.

Dr. C. A. Meserve, in charge of foodstuffs and food for the State, has resigned this position in order to accept that of a major in the Coast Artillery. Jane H. Rider has been appointed director and Norman C. Smith chemist for this department.

Arkansas.

A warehouse, marketing and gin regulating division has been added to the Bureau of Mines, Manufactures and Agriculture. Commissioner Page of the Bureau has been made chairman of the State Agriculture Council.

California.

On April 26 last, after a hard fight on both sides, the State legislature passed the anti-trading stamp and coupon bill introduced on behalf of the California Retail Grocers' and Merchants' Association. An amendment to exempt manufacturers' coupons was passed.

The Poultry Producers of Southern California, a semi-official "trust" formed by State Market Commissioner Weinstock, is reported charged with violation of the Cartwright anti-trust law. It is alleged that more than 30 per cent of the 600 original members have withdrawn from the association, finding that all the business has been done through a brokerage firm who were paid for their services, and that as a result the members of the association received less for their produce than was being paid in the open market.

San Bernardino County has been making a survey of the acreage of foodstuffs planted in the county, at the request of the Food Administration.

California is making a world record in the shipment of perishable fruits and other foods this fall, according to a statement issued by the Southern Pacific Railway. From July 1 to October 1 this railway carried 27,000 eastbound cars, an average of 300 cars daily, which is said to be a record unequalled anywhere.

A large milling concern in San Francisco is making an interesting contribution to food production by maintaining a private agricultural station of 600 acres near Stockton, where the merits of a number of varieties of wheat from Australia and New Zealand are being investigated.

An investigation conducted by a Los Angeles daily newspaper shows that the average increase in the prices of groceries for 1917 over 1915 is 40 per cent, and over 1915 is 64.8 per cent, and that the general increase in food prices has not been a gradual one, but that the entrance of the United States into the war gave a very abrupt upward trend to all food prices.

As an effect of the action of the last Legislature in making one Sealer of Weights and Measures act for several counties, James Duffee of Sacramento has taken the place of C. Lamme in Sutter County in that position.

Colorado.

State Oil Inspector James Duce urged upon the Governor and the Council for Defense that an immediate survey of the State be undertaken to determine the regions underlaid with oil. Mr. Duce believes that Colorado will be found to rival neighboring states in its crude oil supply. One hundred thousand dollars is available for this work, according to Mr. Duce.

T. F. Rawlins, Sealer of Weights and Measures for Glenn County, died suddenly.

Staff Correspondence

Connecticut.

Bridgeport reports that the plan of having a market specialist report daily on market conditions is decidedly successful with the fruit and vegetable growers. This is the result of two months of experience, with the fullest trial of the plan.

Illinois.

Publication of Government food prices for retailers was begun on October 17 by Food Administrator Wheeler of Illinois. These prices and the milk situation are commented on elsewhere in this issue.

Following many complaints that brokers and jobbers have been hoarding food and demanding higher prices than are considered just by the Administration, 200 investigators were sent out from Chicago to run down the complaints. The first definite violation of the new food control law is the case of a Chicago retail grocer who turned over to the authorities invoices prepared by a wholesaler showing the sale of sugar at $7.76 per 100 pounds, the Government price, but stated that he was forced to pay $9.50. The Food Administration expects to prosecute the offender.

Chicago has been having what may be called a scandal in the matter of the railroad yard dumps. Searching investigations have been begun into the cause of the dumping of vast quantities of vegetables, especially potatoes, and the holding up of many carloads. If it is not found that the foods were condemned and permits were obtained for their destruction before they were moved from the cars, prosecutions will follow. Investigators have already declared the situation shameful. Some of the vegetables are said to have been dumped since August, so that the claim of railroad officials that they were frostbitten can hardly be given credence. It is believed in some quarters that there is a plot to keep up potato prices.

Springfield grocers have decided to sell vegetables by weight only, following on the action of wholesale produce men in selling potatoes and other vegetables by the 100 pounds. It is expected that even eggs will soon be sold by the pound instead of the dozen.

Indiana.

Indiana has also been investigating conditions in railroad yards and dumps and the holding up of carloads of perishable foods. The Food Administrator's department is preparing to file suit in Federal court against Minnesota potato shippers for inferior shipments into Indiana. Nearly one-fifth of a recent consignment are said to have been in an advanced state of decay.

The saving of millions of bushels of corn damaged by recent frosts was the subject of a recent conference of grain men, farmers, distillers and representatives of the Food Administration. Glucose manufacturers say that they cannot use the corn, and the distillers want to know whether they will be allowed to open their plants to make alcohol and whether they may sell the alcohol.

Seventy-five farmers and speculators were reported for holding up wheat in violation of the food law. Threatened Government action, together with slackening of farm work, caused freer moving of the crops, however, and unless the mills should run short of a supply of wheat it is unlikely that any action will be taken against the farmers.

The sale of several carloads of cold storage peaches

WILSON & CO.
MAJESTIC HAM

The Wilson Label Protects Your Table

The "W" shaped label, bearing the "Big red W" trade mark is far more than a label. It is the assurance that everything bearing it is selected, prepared and handled with the utmost care. In asking you to buy Wilson products, we ask you to buy food-stuffs prepared as carefully as they are prepared in your own kitchen.

"This mark WILSON & CO. your guarantee"

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The U. S. Government certifies to the purity and wholesomeness of Wilson & Co.'s meat food products. Look for the Government Inspection Mark

Whiter—Sweeter—Lighter Bread and Cake

The first essential of success in home baking is to employ a leavener that is pure, thorough and dependable—one that raises evenly, and gives the bread and cake the right texture, and appetizing appearance—and makes them easily digested. The purity, uniform strength and perfect keeping qualities of

Rumford
THE WHOLESOME
BAKING POWDER

insures whiter, sweeter and lighter cake and bread—it raises the baking just right, and adds to the nutritive value, as it restores phosphatic elements equivalent to those which fine wheat flour loses in the process of milling.

Every Housewife, Dietitian, Domestic Science Teacher and Lecturer should have a copy of "Rumford Dainties and Household Helps." We will be pleased to send it Free upon request.

RUMFORD CHEMICAL WORKS,
Providence, R. I.

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The

ILLINOIS STATE COUNCIL of DEFENSE

announces a forthcoming

FOOD SHOW

to be held at the

COLISEUM, January 3 to 12, 1918, CHICAGO

A patriotic and unselfish show conducted along educational lines; not operated for profit.

No pains will be spared to make this the most significant, as well as the most interesting, food show ever held.

In order to defray expenses a limited amount of floor space is to be sold for exhibition and demonstration purposes to those who wish to co-operate with the Council.

Exhibits of foods calculated to relieve the present strain on the foods most needed by our allies will be appropriate to the occasion, as will those of vegetables and fruits, whether fresh, canned or dried.

Early application for space will be appreciated, and it should be borne in mind that it may be necessary to scale down original, tentative allotments as it is highly desirable that all divisions of the food industry be adequately represented.

For space address

ROBERT G. GOULD
120 West Adams Street CHICAGO, ILLINOIS

Staff Correspondence

slightly frost-bitten was permitted in Fort Wayne, since the fruit was found to be perfectly good for cooking purposes. Proper labeling to show the nature of the fruit was stipulated.

Iowa.

As a result of vigorous measures to maintain proper sanitary conditions at Camp Grant and the institution of prosecutions of a firm which delivered spoiled meat to the base hospital at the camp, the sanitary conditions in the camp are now as perfect as the combined efforts of medical and sanitary men can make them. Every bit of food that comes in is rigorously inspected and the kitchens are models.

Kansas.

Bread weights in Fort Scott have been complained of, the bakers being accused of selling pound loaves in wrappers marked "over 22 ounces."

The Topeka Board of Health has secured the convictions and fining of several bakeries and restaurants for insanitary conditions.

Leon A. Congdon, Assistant Chief Food and Drug Inspector for the State, has agreed to resign on November 1. Mr. Congdon has been accused of insubordination, but under the State law the Board of Health and its secretary, Mr. Crumbine, who is also Chief Food and Drug Inspector, are unable to remove Mr. Congdon, although they appointed him. Mr. Congdon has reconsidered his refusal to resign.

The city of Lawrence has been requested to close all wells in an effort to stop the spread of a typhoid epidemic in the city and the University of Kansas. The city water also has been found very impure.

Louisiana.

The Food Administrator is expected to fix milk prices for the State as the result of an inquiry into the cost of milk in New Orleans.

The sugar industry of the State will have $5,000,000 worth of blackstrap molasses to turn into alcohol for munition purposes and to sell for mixing with cattle feed this year as residue from sugar making.

Massachusetts.

Bread makers conferred with State Commissioner of Weights and Measures Hanson in an effort to devise some way to save about $20,000 worth of bread wrappers which the bakers have on hand. A recent change in the bread weight specified in the law has caused the use of old wrappers to be illegal unless re-marked with the new weight of the loaf. It was finally decided that a slip of paper giving the correct weight should be printed by the commissioner's department and sold to the bakers and that this should be slipped inside the wrapper.

Michigan.

State and Federal inspectors have been investigating the sentiment among apple men in regard to the proposed bill for apple standardization which the Bureau of Markets of the U. S. Department of Agriculture will recommend to the next session of Congress. The proposed national legislation provides practically the same grade specifications as those already fixed by the Michigan legislature. Apple men are said to be in favor of Federal standardization.

Grand Rapids expects soon to be selling and buying ice cream by the pound, in accordance with a proposed city ordinance.

C. V. Ballard has been appointed Sealer of Weights and Measures for Dickenson County.

E. PRITCHARD

Packer and Manufacturer
of the Finest

"EDDYS"
BRAND

Canned Foods,
Jellies, Preserves,
Plum Pudding,
Sauces, Table Delicacies,

and

PRIDE OF THE FARM
Tomato Catsup

Bridgeton, N. J.
and 331 Spring St., New York

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with Paper

The **cost** and **efficiency** of a carton have a direct bearing on profits. The use of "papers that save," instead of metal, in the construction of a container for your product may cost enough less to offset the increase in the cost of the material that goes inside the package, and enable you to maintain established prices and make a profit as good or better than before. The possibility is so good, that this is worth looking into. The correct application of "papers that save" will preserve the product with entire satisfaction. Our How Department can help you with your problem. Are you getting the "Parchment Prattler" monthly? Write to—

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and Waxed Papers

KALAMAZOO MICHIGAN

Why Cocoa Is Popular

By Robert Gordon Gould

THE real reason why cocoa is popular is because it deserves to be popular. In this world things are given their just due, sooner or later. The crucible of time is a great melting pot in which the dross of inferior stuff comes to the top, attracts a moment's attention, only to be skimmed off and thrown aside, leaving everything of real value behind it in the crucible. And so it has been with cocoa. Although one of the oldest of drinks, it is but recently that the painstaking efforts of those who really knew the value of this wonderful food product have been rewarded with public approval in a big way.

And the reasons why cocoa deserves popularity are many and varied. To begin with, it is a beverage against which not the most virtuous reformer can point the finger of criticism. Without the slightest trace of alcohol, cocoa still has the rare gift of being "agreeably stimulating," as the great Weighmann put it several years ago. The stimulation of cocoa is due to a minute quantity of what the scientists call an alkaloid, which in this case they have named theo-bromine or "the food of the gods," "theo" having the same meaning as in the word theology, and bromine coming from a Greek word meaning food.

Cocoa Has Its Own Characteristics.

It is a good thing for a beverage to possess personality. Even in the case of drinking waters there is the possibility of over-refinement going so far as to kill palatability—as those can testify who have had non-aerated distilled water served them. The personality of tea and coffee depends upon the presence of caffein (formerly called theine in the case of tea) and there are those who maintain that caffein is a false friend. The various kola drinks owe their attractiveness to caffein and are properly subject to the same criticism as is leveled against tea and coffee—and no more. Caffein is an alkaloid but of a different sort from theo-bromine.

So we may be assured that the flavor and agreeably stimulating properties of cocoa are not subject to objection from any intelligent sources, and, no doubt, the individuality of the cocoa flavor has had much to do with bringing about its present popularity.

Cocoa Both Food and Drink.

Another reason why cocoa is popular is that it is at one and the same time both food and drink. Of beverages without food value there are many and with them the friends of cocoa have no quarrel. It is well known that neither coffee nor tea has any food value and it is equally well known that simple concoctions of sweetened and flavored water can and do maintain their popularity at soda fountains and similar places over long periods of time. While there are times when the less food value a beverage has the better, such occasions are rare and are generally to be regarded as abnormal. The average healthy American is a fairly sensible individual and seems to prefer as a beverage one that both cheers and nourishes—and of these by all odds the most popular is cocoa.

Cocoa Is Easily Digested.

Because of its dual nature, which combines deliciousness with nutritive value, cocoa is given in hospitals to invalids and convalescents and it is the only infused beverage—one made with hot water—given to children. Here is where cocoa is seen at its best. One needs but to glimpse at a table full of young America going after a jug of cocoa to realize why that beverage is popular. And they can be given all the cocoa their appetite craves, as it is indeed a poor stomach that can't digest cocoa. The ease of digestion for which cocoa is noted is due to the fact that in making cocoa a (relatively large) part of the oil, or fat, naturally present in the cocoa bean is extracted by tremendous pressure. While fats are nourishing they are not the easiest of foods to digest and the doctors tell us that to be readily digestible cocoa should not be allowed to retain more than about half of its natural percentage of fat. Modern cocoas, such as Bunte's White House Cocoa, are manufactured under careful and intelligent management and to the end that the finished result shall be easily and fully digested by even the most delicate invalid.

One can well appreciate with what satisfaction doctors and dietitians regard cocoa. The chief requirements for a beverage to be used with invalids and convalescents are three in number: that it shall be digestible, that it shall be nutritive, that it shall be paltable. Cocoa fills the bill in all three particulars—it couldn't be more completely in accord with the rigorous demands made by those who minister to the sick if it had been made to order.

Cocoa an Economical Food.

When to the foregoing characteristics is added that of inexpensiveness, the case for cocoa is fully presented and its great popularity explained. Although cocoa seeds come from faraway tropical countries, the crop is abundant and the cost of gathering the harvest not serious. Practically each week sees a consignment of fully matured cocoa seeds enter the cocoa factory of Bunte Brothers and, while no necessary expense is spared in the various manufacturing processes, the scale of production is of such magnitude as to permit of selling fully treated ground cocoa in substantial containers at a price well within the reach of even a modest purse.

Necessity for food conservation is giving prominence to the dietetic value of cocoa, gradually spreading the knowledge that cocoa is a food as well as a pleasing drink—knowledge promising permanent popularity for cocoa.

One of the features of Bunte Cocoa—and a feature which has contributed materially to its prosperity—is the beautiful blue and gold container in one-fifth, half-pound, one-pound, five-pound and ten-pound sizes.

Messrs. Bunte Brothers of 730 West Monroe Street, Chicago, have several booklets, descriptive of their cocoa, cough drops and other products—they make many kinds of candy—which you may have on request.

Acid Calcium Phosphate

Acid Ammonium Phosphate

Liquid Acid Phosphate

Baking Powder Materials

Phosphoric Acid

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Oxalic Acid

Correspondence solicited

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Largest Manufacturers

Nucoa Nut Margarine

MADE OF NUTS AND MILK
FREE FROM ANIMAL FATS

THIS product is taxed and regulated the same as animal oleomargarine. We oppose the former and positively favor the latter. We want this product sold on its merits for just exactly what it is. We refuse to sell moonshiners. This product is sold only in one, two and five pound cartons. Our business has grown rapidly on new, progressive lines.

The Nucoa Butter Company
CHURNERS
Sales Department, 10 Bridge Street, New York

Staff Correspondence

Minnesota.

A campaign against frozen potatoes has been begun by the State Dairy and Food Commissioner as the result of the seizure of 97 bushels of frozen potatoes in a boxcar in Minneapolis.

Arrests under the pure food laws have been made for selling adulterated glazed cherries and orange phosphate containing coal tar dyes.

Mississippi.

The State will ship 200,000 hogs this year, nearly double the number shipped in 1916. In 1915 only 15,000 were shipped. Co-operative shipment is responsible for this great increase.

The director of public health of Hattiesburg refused to allow any more oysters to be shipped to that city from certain shuckeries on the Gulf Coast until insanitary conditions in those shuckeries were materially remedied. The immediate resulting clean-up was so effectual that the ban was removed within a few days.

Missouri.

Reports to the milk inspector of Springfield recently showed that the high cost of feed forced out of business during the last month six dairies which supplied the retail trade of that city.

St. Louis commission men have begun to sell potatoes by weight and it is expected that most vegetables will soon be sold in the same way.

A St. Louis women's committee has established a cannery near the produce section of the city, where each night they can the perishable fruits and vegetables from produce houses. The workers are paid partly in canned food and partly in raw materials.

Montana.

At the request of the State Board of Health, the Butte Board of Health, and the State Dairymen's Association, the State Board of Railway Commissioners granted a hearing relative to improved transportation facilities for dairy products in the state, and particularly into Butte.

The petitioners requested the installation of adequate methods of refrigeration of dairy products while in the course of transportation. The transportation companies claimed that the volume of business over any one route did not warrant the installation of refrigeration service.

Investigation conducted by the State Board of Health during the month of July showed that the total milk and cream shipments into Butte during that month amounted to 133,542 gallons, divided as follows: milk, 72,213 gallons; cream, 61,329 gallons. Of the milk shipment it was found that 3,516 gallons was received in a sour condition. As a result of the hearing it was shown that there has been negligence in the care of dairy products. The producers did not always deliver milk and cream properly cooled and promptly to the transportation companies; the transportation companies in certain instances permitted milk and cream to await shipment on the platforms exposed to the sun; and receiving creameries and dairies did not always call promptly for the product. The responsibility could not be placed entirely upon any one of the three parties concerned.

The dairymen claimed there was a great deal of dissatisfaction among shippers owing to the careless manner in which milk and cream cans were handled by the carriers. Moreover, it appears that it has been

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The leading manufacturers in every branch of the food industry read THE AMERICAN FOOD JOURNAL. Not infinite in number, to be sure—there never can be many leaders—but great in influence.

Those whose official duty it is to enforce the many food laws of the Nation read THE AMERICAN FOOD JOURNAL. Here, again, the number is not great, but the influence is tremendous.

Those who want the *facts* about the food industry—doctors, dietitians, teachers, lecturers, writers and women actively interested in food—read THE AMERICAN FOOD JOURNAL. This is the element which has perhaps the greatest power of all to spread the gospel of sanity in food control.

Is this of interest to you?

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15 South Market Street, Chicago

TIN and FIBRE CONTAINERS

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Foods, Drugs, Oils

Infinite Variety
Large Capacities
Prompt Deliveries

American Can Company
Chicago New York San Francisco
WITH OFFICES IN ALL LARGE CITIES

WM. J. MOXLEY'S
"SPECIAL"
OLEOMARGARINE

The Taste Is the Test

Where Quality and Economy Meet

Gives better satisfaction than 75 per cent of butter used. Cost one-third less. Try it and be convinced. Order a package from your dealer.

Churned by
WM. J. MOXLEY, Inc., Chicago

Staff Correspondence

customary to leave empty cans scattered about the depot platforms, and that many dairymen were not careful to take their own cans. Railroad companies reported a shortage of baggage and express cars and admit considerable delay in returning empty cans. Claim agents of express companies report that the value placed on lost milk and cream cans is becoming an important item, recently as much as $7 per can. The Bureau of Animal Industry has recently, by a circular news letter, called attention to the scarcity of material and increased cost of manufacturing such containers. Possibly with the increased valuation milk and cream cans will command more respect at the hands of all parties concerned. It appears that in the near future it will be necessary for officials to declare what class of baggage and express shall have preference in delivery.

The State Board of Railroad Commissioners now has this case under advisement and a report of their instructions to transportation companies will be published in the near future. This case shows the need of co-operation between the producer, the transportation companies, and the receiving creameries or dairies for the good of the consumer.

On October 4th, by action of State Board of Health, licenses were revoked on nine restaurants, one bakery, one confectionery and one dairy for operating under insanitary conditions in violation of Board regulations.

During September prosecution was instituted in 11 cases for the sale of adulterated milk. One prosecution was made for the sale of hamberger containing sulphite.

Nebraska.

Appeal has been made to the Federal Food Administration for cars in which to move the crop of potatoes which are in great danger of spoiling with frost.

A plant has been installed in Omaha to turn buttermilk into buttermilk powder by a new process.

An Omaha company was recently fined $700 for adulteration of vinegar.

New York.

Commissioner of Public Markets Moskowitz has organized a trade council of representatives of the various branches of the food industry and at the same time requested that a citizens' food council representing the consumers be formed. The Health Department is co-operating closely. Through its bureau of food and drugs it has made a census of all food handling establishments in the city, no matter what their size, and has analyzed the entire course of food into and through the city, and worked out an analysis of the food waste problem. Eight great causes of waste have been tabulated:

1. No terminal markets.
2. Duplication of marketing facilities.
3. Expensive cartage.
4. High retail delivery costs.
5. Unnecessary credits.
6. Extravagance in service and display.
7. Failure to buy home-packed goods of equal quality.
8. Failure of retailer to use proper merchandising methods.

The police and license departments are also closely co-operating with Mr. Moskowitz.

What Corn Meal CAN Be

The average corn meal of commerce gives you no idea of what corn meal really **can be.** The heart—the part which contains the rich flavor and the energy-producing material—has been removed for other commercial purposes.

E. & M. Corn Meal contains **all of the corn** which gives it double the mineral value, triple the fat and 20% more protein than granulated corn meal. Just look at the comparison:

	E. & M. (Analyzed by Columbus Laboratories, Chicago)	Granulated Corn Meal (U. S. Dept. of Agri. Division of Chemistry Bulletin No. 50)
Water	13.2	12.6
Mineral Matter	1.3	0.61
Protein	8.7	7.1
Fat	4.3	1.3
Fibre	2.7	0.9
Carbohydrates (Starch)	69.8	78.4
	100	100

E & M

Stone-Ground

WHOLE CORN MEAL

"The Heart's in It"

E. & M. Corn Meal is ground, here in Chicago, by the old-fashioned, stone-buhr method which preserves the real corn flavor. You don't know how temptingly delicious corn bread or johnny-cake can be until you have tasted it made from E. & M. Corn Meal. Milling E. & M. in Chicago, and our excellent delivery service, guarantees that it is always fresh.

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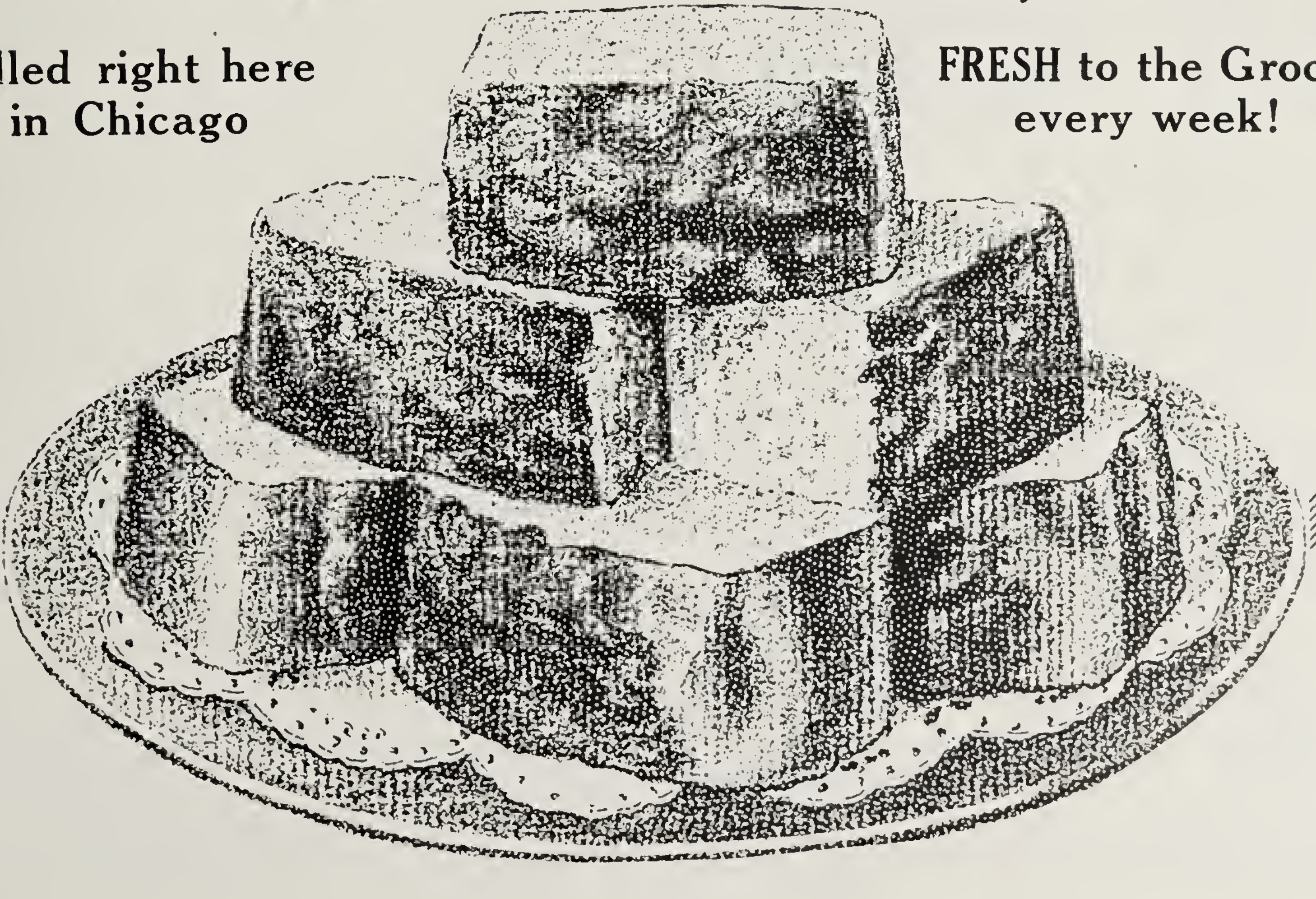
FRESH to the Grocer every week!



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CLEANLINESS, HEALTH
INSURANCE, ECONOMY
AND CONVENIENCE IN

Our PET
BRAND
Evaporated
Milk

The Standard of the World

Wins and Holds Trade on
account of its Superior Quality

PREPARED BY
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HIGHLAND, ILLINOIS
ORIGINATORS OF EVAPORATED MILK

Purity of essential ingredients.
Constant U. S. Government Supervision
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Rigid sanitary rules in every step of production.

These rules are fully appreciated by
MORRIS & COMPANY,
which sincerely endeavors to merit the
confidence of the ever-increasing patronage
given their choice oleomargarine
"MARIGOLD"
The National Bread Spread.

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Branches in nearly all large cities

Staff Correspondenec

State Commissioner of Food and Markets Dillon called a conference with five labor organizations to consider a way to cut living costs by developing a club purchase plan for the city. The milk situation and the feasibility of a large terminal market were discussed.

The Mayor of New York has requested his committee on the milk situation to consider the practicability of a system of milk pasteurization for the entire city.

Boy scouts in New York City sort over the damaged shipments of fruit and vegetables left on the docks by produce houses, and save the good portions for sale to East Side housewives, who buy for canning and drying. This work is done under the supervision of a health inspector. When less than 20 per cent of the food is injured, it pays to sort it out and save the good portion. Below that line the damaged stuff is destroyed.

A New York sugar house asks its customers to increase carload orders to a unit of not less than 125 barrels or 600 bags of sugar. It has long been the rule in the sugar trade to consider 100 barrels or 350 to 400 bags a carload. Freight shortage has encouraged the loading of cars to full capacity. Two hundred and forty-four barrels or 1,000 bags of sugar can be shipped in a standard 40-foot freight car.

Ohio.

A barrel containing 600 pounds of poisoned candy has been found in a Cincinnati freight house, and the Health Department has been trying to trace it. Each piece of candy contained enough arsenic to kill a person.

The city Sealer of Weights and Measures for Dayton condemned 58 baskets of fruit and vegetables for short weight.

Clarence Campbell has succeeded Ernest C. Rehfuss as Sealer of Weights and Measures for Preble County.

Pennsylvania.

David Wells of Waynesburg has been appointed Sealer of Weights and Measures for Greene County.

Tennessee.

The State Food and Drugs Department is planning a thorough clean-up of sanitary conditions, especially in soda fountain and soft drink stands. Six Chattanooga restaurant proprietors were fined for violation of the pure food law.

Texas.

San Antonio has created the office of Feed, Weight and Measure Inspector of the city Sherman has adopted an ordinance providing for a Weight and Measure Inspector.

It is reported that a delicious table syrup is being made in Texas from mesquite beans, of which there are millions of acres of land in the State. The large amount of saccharine in the beans is easily converted into molasses at low cost by boiling the juice.

Utah.

At the organization of the Western States Dairy and Food Association in Salt Lake City, a member was appointed to have charge and authority over interstate shipments of food and drugs that come under the Federal interstate commerce law. Hitherto, whenever shipments were found in violation of the Federal law no one had any authority to hold them up except the

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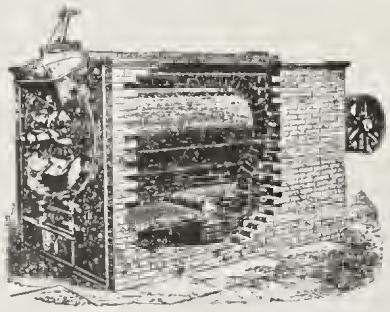

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Staff Correspondence

Federal authorities, and usually by the time these were notified and arrived the goods had already been shipped forward. This newly appointed representative has authority, however, to make arrests and act in the name of the Federal authorities.

Washington.

F. E. DeSellem, horticultural inspector in Yakima County, has been named as one of four divisional heads of the U. S. Bureau of Markets, stationed at Kansas City, from where he will direct free inspection of fruits and vegetables shipped from the south and southwest through Kansas City.

Wisconsin.

Licensing of cold storage warehouses, of bakeries, confectioneries and soda water establishments has recently been accomplished by the State.

Fred P. Downing, Chief Inspector of Weights and Measures, has resigned to accept a position with the U. S. Bureau of Markets. Ralph Smith has been appointed to take his place.

Milwaukee's city Sealer, F. C. Janssen, has been named by the County Council of Defense purchasing agent for all food that will be distributed in the city this winter.

A Black Creek butcher was fined $31.24 for putting sulphite in his hamburger as a preservative.

Eau Claire is having a milk clean-up. Several samples of milk tested for sediment were in the C class, which meant the very lowest quality. The dealers were asked to co-operate in changing conditions.

About 1,500 pounds of butter were seized by the Revenue Department from one creamery. The legal limit for water is 16 per cent and some of this butter was as high as 21.7 per cent water.

Salad Dressing Label Upheld.

The Supreme Court of the State of New York recently decided in favor of the defendants in the suit of the Commissioner of Agriculture against Eugene W. Durkee to compel him to disclose his formula on his label.

The label on Durkee's Salad Dressing shows that it is a mixture, but does not show its constituents.

The decision stated: "That nothing in this article shall be construed as requiring or compelling proprietors or manufacturers of proprietary foods which contain no unwholesome added ingredients to disclose their trade formulas, except insofar as the provisions of this article may require to secure freedom from adulteration or imitation."

Durkee's Salad Dressing and Meat Sauce was admitted to contain no unwholesome added ingredients and therefore its manufacturer was not required to disclose his trade formula, in order that freedom might be secured from adulteration or imitation.

Shortage of Chemicals.

The National Canners' Association has been advised by the U. S. Food Administration that the supply of chemicals for the year 1918 will probably be insufficient to supply the demand. Caustic soda will be in particular demand throughout the year. The Administration advises that, under the circumstances, those of the canning industry who may have occasion to use chemicals of any kind will do well to anticipate their needs in ample time.

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Question: What Is White Corn Flour?

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Question: What Proportions Are Advisable in the Blend?

Answer: From 5% to 15%.

Question: Why Does the Government Urge the Admixture of White Corn Flour by Bakers?

Answer: In order to conserve the wheat, the world's wheat crop being insufficient to supply the United States and our Allies with wheat flour.

Question: What Are the Economic Advantages to the Baker in the Use of White Corn Flour?

Answer: Material savings which enable him to provide the largest possible loaf at the lowest price.

Question: What Are Those Savings?

Answer: The much lower average price of White Corn Flour, the use of less shortening and yeast, and a saving in time.

Question: Why Does the Use of White Corn Flour Make Possible the Employment of Less Shortening?

Answer: Its use decreases the proportion of proteins coagulable by water.

Question: What Is the Value of White Corn Flour as a Yeast Food?

Answer: It has a very high value—is very rich in diastatic elements which during fermentation develop dextrine and maltose, strong yeast foods.

Question: Is Corn Starch Similar to White Corn Flour?

Answer: No. Corn Starch is a carbohydrate, while White Corn Flour contains all the properties of a perfectly balanced food.

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Recent Patents

The following patents of interest to readers of this journal recently were issued from the United States Patent Office. Copies thereof may be obtained from R. E. Burnham, patent and trade-mark attorney, Real Estate Trust Building, Washington, D. C., at the rate of 20 cents each. State number of patent and name of inventor when ordering:

1,239,471. Milk-powdering machine. Irving J. Felleman, Gridley, Cal.

1,239,555. Process of treating rice and product thereof. Moses M. Baumgartner, Freeport, Ill.

1,240,016. Process of preparing a non-alcoholic chill-proof beverage. John Beerhalter, Duluth, Minn.

1,240,020. Concentrated food product and the like. Teofron Boberg, Olof Söderlund, and Felix Ashlund, London, England, assignors to Techno-Chemical Laboratories Limited, same place.

1,240,164. Process for the preparation of the flesh of animals of the bovine genus (to be used as food). Jubo Balzari, Buenos Aires, Argentina.

1,240,869. Oleo-stock clarifier, seeder and breaker. Guy L. Noble, Chicago, Ill.

1,240,909. Machine for making ice-cream cones. Karl Wessel, St. Paul, Minn.

1,241,163. Process for canning rice and milk. William H. Stevens, Portland, and Scott C. Dunlap, Amity, Ore.

1,241,165. Stacker for confections. William J. Swartz and Edward H. Waugh, Seattle, Wash., assignors to Automatic Candy Machine Co.

1,241,374. Meat curing process. James W. Hammett, Eureka, W. Va.

1,241,390. Dough-mixing apparatus. Elmer H. Jackson, Seattle, Wash.

1,241,529. Machine for peeling tomatoes. John W. Linville and Carl C. Tillman, Toledo, Ohio, assignors to Linville, Tillman & Co., same place.

1,242,034. Fruit-sizing machine. Herbert G. Pearson, Paonia, Colo.

1,242,079. Dough-moulding machine. Charles A. Thomson, Belleville, N. J., assignor to Daniel Mellis, same place.

1,242,396. Bread manufacture. Arnold S. Wahl, Chicago, Ill., assignor to The Wahl Efficiency Institute, same place.

1,242,542. Machine for cutting dried pastes. Karl Cammel, Cleveland, Ohio, assignor to Cleveland Macaroni Co., same place.

1,242,562. Candy-making machine. William B. Laskey, Marblehead, Mass.

1,242,728. Art of conserving fresh vegetables. Joseph Schneible, Chicago, Ill.

1,242,753. Machine for shaping pieces of dough. Frederick Aeschbach, Aarau, Switzerland.

1,242,883. Shortening composition and method of producing the same. Henry A. Kohman, Truman M. Godfrey and Lauren H. Ashe, Pittsburgh, Pa., assignors to Ward Baking Co., New York, N. Y.

DEFINITIONS AND STANDARDS FOR MACARONI, SPAGHETTI AND VERMICELLI.

The following definitions and standards for macaroni, spaghetti, vermicelli, flour macaroni, flour spaghetti, and flour vermicelli were adopted by the Joint Committee on Definitions and Standards of the United States Department of Agriculture November 18, 1916, and were approved by the Association of Official Agricultural Chemists, November 22, 1916, and by the Association of American Dairy, Food, and Drug Officials, August 3, 1917:

Macaroni, spaghetti, vermicelli are dried pastes made of the semolina of hard wheat.

They contain not more than thirteen and one-half per cent (13.5%) of moisture.

Flour macaroni, flour spaghetti, flour vermicelli are dried pastes made of flour or of a mixture of flour and semolina.

They contain not more than thirteen and one-half per cent (13.5%) of moisture.

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THE AMERICAN
FOOD JOURNAL

With Which Has Been Combined
The American Food Manufacturer.

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There is no higher art than that which tends toward the improvement of human food.—*Henry Ward Beecher.*

Robert Gordon Gould, *Editor*

Vol. XII DECEMBER, 1917 No. 12

The Patriotic Food Show

As announced in these columns last month, the State Council of Defense of Illinois is planning for a food show early in 1918. The date has been set as January 5 to 13, inclusive, including Sundays. An admission fee of 25 cents will be charged, but arrangements have been made to render it possible for all housewives to attend for the nominal sum of 15 cents.

The slogan of the Patriotic Food Show will be, "What to eat and how to cook it," the main purpose being educational rather than commercial. Undoubtedly, this show will be the most pretentious series of culinary demonstrations ever undertaken. To this end the floor of the huge Coliseum has been platted in five main divisions, one each being devoted to *protein foods, fats, sugars, fruits* and *vegetables,* and *starchy foods.* Down the center of each of these divisions will run domestic science tables forming a hollow rectangle, the workers to be located within the rectangle. Broad aisles on both sides separate these demonstration tables from rows of booths which will house exhibits of foods appropriate to the section. In the protein section will be demonstrated by skilled dietitians all available foods high in protein. The list ranges from the cheaper cuts of beef to soy bean and other leguminous products. Great emphasis will be laid upon the use of fish, poultry, upland game, cheese, eggs and milk. Naturally, the exhibits in the protein section will be of foods which can be used to relieve the present strain on red meat.

In the other sections the same relative conditions will obtain, one purpose of the show being to educate the people of Chicago as how best to enlarge the dietary and thus temporarily lessen the domestic demand for such foods as we are in duty bound to send to our comrades in arms across the sea.

The Patriotic Food Show is not devoted to economy so much as to enlarging the diet; it is not so much concerned with thrift as with alternative foods. One of its purposes is to dignify the word *substitution.*

The enterprise as a whole is under the auspices of the State Council of Defense, of which Mr. Samuel Insull is chairman. Working closely with the Council is the Illinois Division of the U. S. Food Administration, of which Mr. Harry A. Wheeler is the head. The actual management is in the hands of a citizens' committee, the chairman of which is Mr. Louis N. Stumer. Working either as members of Mr. Stumer's committee or in association with it are many capable and loyal Chicagoans who realize that this enterprise affords them an opportunity to render patriotic service which is very much to the point at this particular time.

The program of demonstrations, lectures and similar features is being cared for by the University of Illinois, the University of Chicago, Lewis Institute (Chicago), the Illinois State Normal School, Millikin University (Decatur) and the School of Domestic Arts and Science (Chicago). The U. S. Food Administration has evinced interest in the project and will lend its support in many ways, as will the federal bureaus of Plant Industry, Animal Industry, Fisheries, Standards, Markets, and Education.

There is reason to believe that similar exhibitions will be staged in other parts of the country. In the opinion of many who are well qualified to speak authoritatively on the subject the matter of alterations in the dietary of a nation can best be effected by means of actual demonstrations. The printed word is good, the spoken word is even better, but best of all as an educational force is the actual accomplishment of some definite act in plain view of an audience. The scores of thousands of women who see corn meal being made into bread as that honest cereal can, and should, be made into bread will carry with them from the Patriotic Food Show something that but few can gain from listening to a lecture and that but one in a thousand can gain from the printed page.

All things considered, this Patriotic Food Show of the Illinois State Council of Defense is probably the most significant move the war-induced food situation has brought forth.

Butter Standards.

In June last a hearing was held in Chicago by the Joint Committee on Definitions and Standards, the purpose of which was to arrive at some definite understanding as to what standard should be recommended for commercial butter. The meeting was largely composed of dairymen and of professors from dairy schools and the unanimity of opinion as to the desirability of standardizing butter at about 80 per cent fat and as much as 16 per cent moisture was almost startling. Since that time not a great deal has been heard of butter standards. Recently Swift & Company through their counsel, Messrs. Henry Veeder, R. C. McManus, George P. McCabe and W. P. Jones, have filed with the Joint Committee on Definitions and Standards a brief on the subject of butter standards and the laws which must be taken into consideration in making such standards.

In its issue of December 5, 1917, *The Dairy Record* of St. Paul, Minnesota, discusses the Swift & Company brief somewhat in extenso. As this JOURNAL at all times endeavors to discuss both sides of all moot points, it is with much interest that we incorporate in this article a considerable part of our contemporary's recent comments on the Swift & Company brief. We believe that the following editorial comments, coming as they do from a dairy paper of standing, are worthy of the careful consideration of all who are interested in the butter industry:

"Much has been said and written about butter standards, some of it very good, some not at all to the point, and a lot of it mere camouflage from the leaders of the centralizers and from their errand boys. The latter, of course, want things left just about as they are, which means a sixteen per cent moisture limit and an eighty per cent butterfat minimum, with nothing said about the use of neutralizers, the whole standard resting upon laws that do not conflict but overlap each other, contain some rather impossible provisions and are to be enforced by different departments, thus creating loop-holes and making all clear as the proverbial mud—just the right kind of situation for a system that depends on an appeal to the farmer's laziness, carelessness and his indifference about securing raw material in territory covered by co-operative creameries.

"Now come the attorneys for Swift & Co. with a brief containing their suggestions for a standard for butter, submitted to the Joint Committee on Definitions and Standards. Were it not for the name on the cover of the brief, we might have taken it for suggestions put forth by a committee of an as yet non-existing organization of co-operative creamery men, but Swift & Co. are, among other things, meat packers, centralizers, butter buyers and—oleomargarine manufacturers. Hence it behooves us to look carefully before we consider any suggestions coming from them.

"Of course, some other butter manufacturers are also oleomargarine makers; a good many very respected butter dealers are oleomargine dealers and some are also centralizers, and the centralizers do far more harm to the men making their living through the local creamery system than oleomargarine ever did, but none of all these gentlemen has ever been kicked out of the National Creamery Buttermakers' Association, although the membership of many of them is in plain violation of the constitution of that organization. But when a company are meat packers, centralizers, butter dealers and oleomargarine manufacturers all at once, we expect to hear a great cry go up from the centralizers and the National Dairy Union warning the 'little' creameries, the co-operative associations, to beware.

"It has always been that way—whenever the centralizers, their own association and other associations and institutions which they control, see dangers to their system ahead, the cry of oleomargarine is set up and the co-operative and other 'little' creamery men are expected to forget everything, drop their protests against being killed off by the unfair methods of the centralizers and *"rally, boys, rally!"* against that most nefarious schemer, the oleomargarine manufacturer. And they generally do.

"So, in order to save the breath of our habitual criers of wolf, we warn our readers right now to look for a motive, for the nigger in the wood pile, in these suggestions made on behalf of Swift & Co., when they read the all too short review of the brief which we begin in this issue. We confess we are unable to see what bearing the Swift suggestions, if adopted, would have on the relation between good butter made under the local creamery system and oleomargarine, although we can readily see the bearing they would have on centlalized butter, and, probably, on the enactment of an entirely new butter law, which probably is the thing Swift & Co. want. So if an effort is made by the centralizers and their followers to sweep the Swift arguments aside by adopting still another resolution condemning oleomargarine, beware, Mr. Co-Operative Creamery Man, for the centralizers are simply trying to flim-flam you once more. Bear in mind that the centralizer is far more your enemy than the oleomargarine maker. Also, there is one very plausible motive for the Swift suggestions, namely that the attorneys who wrote them are employed to see to it that the many products of the firm are lawful and that, coming to butter, these attorneys became convinced that butter as made today, their own included, is not in accord with existing laws. Having arrived at that conclusion, it was up to them to do what they could to set things right, and the only thing they could do was to make their suggestions to the Joint Committee on Standards.

"We regret that lack of space prevents our publishing the brief in full, but read what we are able to print of it. You will be a wiser and better informed creameryman, as to the laws and as to the real menace of the centralizing system than you ever were before. The brief is by far the most thorough and exhaustive analysis of the laws and the subject of a butter standard that has been made, and it is a sad reflection on the condition to which creamery buttermaking has been brought by the methods of the centralizers, that it takes attorneys for a firm of oleomargarine makers, as well as centralizers, to provide the most comprehensive study of this subject. Our dairy school should have provided it.

"The brief advocates that standard butter must be made from pasteurized cream; shall not be made to contain abnormal quantities of salt or curd; shall contain a definite minimum percentage of butterfat; that in the manufacture of standard butter no process or material shall be used which has the effect of causing the butter to absorb abnormal quantities of water, milk or cream; that if small quantities of lime or alkaline salts are used, except for the purpose of deodorizing or removing or masking rancidity, such butter shall not be standard butter, but shall be defined as 'neutralized butter' or 'limed butter.' When it comes to butter made from cream that has been deodorized by the use of neutralizers and has had its rancidity removed, the brief holds that such butter is clearly adulterated butter within existing laws and should so remain.

"It would appear that the local creamery system should be in far more harmony with these suggestions as to standard butter than any suggestions made by the centralizers. But if we take the laws and court decisions, as quoted in this brief, we are all makers of adulterated butter, as pointed out in the DAIRY RECORD some time ago, for the reason that the Act of May 9, 1902, classes as adulterated butter 'any butter in the manufacture or manipulation of which any process or material is used with intent or effect of causing the absorption of abnormal quantities of water, milk or cream.' Unless the Joint Committee succeed in defining a process, which is not a process, for the manufacturer to go by, a new law defining butter is necessary. Otherwise every creamery man must of necessity blindfold himself every time he makes a churning of butter, in order to comply with this law.

"The suggestions contained in the brief, including those to the effect that the Joint Committee on Standards designate the variable limit in standard butter of the normal quantities of salt, curd and moisture, deserve the utmost consideration at the hands of all co-operative and other local creamerymen, regardless of the unavoidable suspicions which their source may arouse in men into whose ears has been dinned the fear of oleomargarine with so much noise that they do not hear the rumble of the centralizer wagon as it gathers up the cream at the doors of the very same men."

The Chemist In the Canning Industry

By H. A. Baker
Of the American Company

In connection with this article it is interesting to know that Mr. Baker has recently gone to Washington to become a member of the Committee on Conservation of Tin Plate. Mr. Baker's experience of both a technical and practical nature, together with his intimate knowledge of manufacturing, should make him a valuable member of that committee.—EDITOR'S NOTE.

THE canning industry is nothing more or less than kitchen activity carried out on a large scale, with mechanical labor-saving devices. Food laws and evolved trade custom and ethics define canned food as natural products, with or without added salt and sugar, plus water when desirable or necessary, sterilized and preserved by heat alone. The point that naturally arises is why should any chemists be needed in an industry so simple as this. Some developments and work in this connection might therefore prove interesting, because, as a matter of fact, more chemists are needed than are engaged in the industry at the present time.

Up to about nine years ago chemists exerted very little influence in the development of the canning industry. Of course, every one is familiar with the fact that the industry was founded on a basic scientific discovery. Its development, however, was largely due to shrewd experimenters, usually without technical education. It is true that valuable assistance was rendered from time to time by technical men, usually associated with colleges, but until lately the industry did not have men with technical training on its own payrolls.

The Department of Agriculture gave some helpful attention to canned foods, but for a considerable time, in sharp contrast to their present activities, this help was along critical and not constructive lines.

In 1912 the canning industry had become sufficiently progressive to have developed a strong national organization for self-development, education, dissemination of statistics, and activities along many lines other than marketing. It was then prepared to go one step further and establish a National Association Technical and Research Laboratory, and this was accomplished with the aid of generous donations from some allied industries. This development opened opportunities for much experimental work on a large scale and of a co-operative nature that hitherto had been difficult if not impossible. The Department of Agriculture has looked very favorably upon the Association laboratory, and has co-operated with it on several large investigations in connection with various industrial manufacturing concerns, supplying the tin plate, steel and cans for the trade. This machinery for co-operation is so complete and safeguarded from bias that investigations of national scope can be carried out and the results be accepted by both the trade and the technical men of the country.

It might be well at this point to give an outline of some of the problems that are being studied, as well as those yet to be worked on. In doing this we will not attempt to make any individual mention of technical men or laboratories, the main point being to disclose somewhat the nature of the work and the field for technical men in the canning and allied industries.

To begin with, we would point out that it has been found the work involves two sets of technical men—those who are primarily technical men with superficial knowledge of the practical end of the work, and technical men with a broad and adequate knowledge of laboratory work, who are primarily business men with some executive ability. It will be readily seen that this arrangement is much more satisfactory than the usual one where purely practical and business men have the responsibility for the direction of technical activities. While canning work is merely kitchen work on a large scale, it involves the use of high speed machinery, concentrating and cooking devices, elimination of air and gas in the product, proper sealing temperatures and exhaust, proper closure, proper cooking temperature, as well as proper preparation of the food for canning.

Some idea of the magnitude of the work is gained from the following brief statistics:

There are produced in the United States at the present time about 32,000,000 base boxes (100 pounds each) of tin plate per annum. About 5,000,000 base boxes are exported, and approximately one-half the balance is used in making containers for canned food. That is, the equivalent of nearly 5,000,000,000 No. 2, or 1¼-pound cans, are being packed this year.

Innumerable problems necessarily arise in connection with spoilage, quality, appearance, discoloration, consistency, etc. Many can hardly be answered from the laboratory and must be worked out by practical experimentation in a factory. For instance, a few parts per million of copper in canned corn from cooking utensils will turn it a dark gray. A very minute amount of copper will turn canned shrimp black. If evaporated milk does not receive the proper heat treatment after condensing it will not stand sufficient processing to sterilize it without causing coagulation of casein and separation of cream. If condensed milk is not properly prepared in regard to the proportion of milk solids, sugar and water, and if the cans are not properly sterilized before filling, and asceptic methods of filling are not used, yellow discoloration of the product and spoilage will ensue. If corn is not properly heated before canning, the resultant product is watery and separates. If string beans are not properly blanched, the product is either slimy or too tough. If red cherries are held in cold water too long, they will turn brown after canning. If cherries are packed in too heavy a syrup they become very tough. If clam juice is expressed at too high a temperature it turns black in the can. It will be seen that any of these problems, if carried to a consulting chemist outside of the industry, would cause him endless trouble and could not be solved by analytical work.

A curious difficulty arose some time ago in connection with canned apples from a certain section of the country. These apples perforated tin containers very badly, spoilage was enormous, and there seemed no way of stopping the trouble. A peculiar thing was that the apples which caused trouble only contained about one-half as much acid as apples packed in neighboring states that caused no trouble. A certain chemist figured out from observing the drop in the water line of the cans that there must have been more air in these apples than in those that did not perforate. Actual tests showed this to be the case. It was found practicable to vacuumize these apples under water, in which case the exhausted air cells became filled with water when the vacuum was released, and it was found that apples packed after this treatment, on a large commercial scale, had not the slightest tendency to perforate the containers. Because of the urgency and extremely heavy losses, it was necessary to jump directly from a small laboratory experiment in glass to factory installation capable of handling millions of pounds of apples in a season. Peculiarly enough the installation worked perfectly from the outset.

For quite another reason about three-quarters of all the Hawaiian pineapple packed is vacuumized. It was found that if this was done on releasing the vacuum the free juice on the outside of the slice, entering into the emptied air cells of the fruit, would change the color instantly from a rather unattractive white to a rather standard yellowish which gives the appearance of perfectly ripened fruit.

For a long time the waste of the trimmings and the small pineapples was a dead loss. Chemists went to work on the problem and now small pineapples and trimmings are crushed, the juice clarified, acid removed, and the syrup concentrated and used in canning in place of cane sugar. There is approximately a pound to a pound and one-half of cane sugar in one gallon of fresh pineapple juice. The use of this has lowered the cost of canned pineapple to the consumer.

Great changes have taken place in meat-packing methods in the last few years and have resulted in saving over half the labor cost of canning. It was considered for a long time necessary to seal meat products in cans under vacuum because of the sensitiveness of such products to discoloration when cooked in the presence of air. It was pointed out and demonstrated by chemists that by changing the type of can and filling it so full that very little air space is left in it, and by merely steam-heating the product before sealing, better results could be obtained than were possible with the vacuum system. By the consequent halving of labor costs, an enormous saving was realized.

Cooking large cans of approximately gallon size had always been an expensive matter and involved much loss through the internal strain on a can of large area. Extremely heavy weights of tin plate were demanded but buckles still occurred, tin plate was broken, and spoilage resulted in cooking retorts when the surrounding counter-balancing steam pressure on the outside of the cans was released. Simple pressure cooling devices were evolved, which eliminate all trouble and loss on this score, besides reducing the cost of the container.

Methods of analyzing tin plate have been developed in a certain laboratory which designed a machine that enables four men in an eight-hour day to turn out 1,000 analyses.

Much technical work has been done on tomato products. Sanitary methods of handling, sorting and cleansing have been devised, so that it is now possible to make tomato pulp, puree, ketchup, etc., with a minimum count of yeasts, mold and spores. Methods worked out are simple enough for the use of the average factory in controlling the finishing point, or density, of tomato concentrated products. Chaos had reigned in this manufacture, and the loss and miscalculations were surprisingly large. Some canners boiled their product, allowed it to stand, and drained off the liquor which settled at the bottom, little dreaming that in this way they were losing most of the sugar and flavor and a very high percentage of solids. Much more profitable manufacture and elimination of waste resulted from concentrating liquor as well as pulp.

A great deal of work has been done on the cause of bacterial spoilage in canned food. This trouble always has one of two causes: either a minute defect in the can or under-sterilization. All the arts of the canmaker, all the devices for testing, and the cunning of the bacteriologist are necessary in many instances to determine the cause of spoilage. It will be readily understood that successful work along these lines means the elimination of loss—that is, conservation of food materials and reduction in the cost of food to the consumer. It is not necessary to cite innumerable examples along these lines, for enough has been given to indicate the nature of the problems and the possibility of their solution. We should, however, mention two pieces of work that were done co-operatively through the organization previously described in connection with the National Canners' Association laboratory.

In the first case, a general survey was made of the absorbed tin in all types of canned food in every type of container, with various weights or thicknesses of tin coating, both plain and enameled. As the result, it can now be predicted approximately how many milligrams of tin per kilogram of food will be found in any tin can, with any product, in a given space of time, and whether or not the can should be plain or enameled.

Another extremely large experiment was carried out on determining the relative value of different weights of tin coatings on tin containers, and it was found that for all general purposes, except one, there was practically no difference in the protective value of tin coating running between one pound and two pounds of tin per base box. Approximately the same number of breaks, or minute defective spots, in tin coating is found irrespective of the weight of the coating, and if discoloration trouble develops, it cannot be taken care of by extra weight of coating. The product itself must be so prepared and handled that it will not attack the container in such a way as to cause discoloration.

Consider for a moment the element of conservation involved in this conclusion. If tin plate were manufactured with a half pound more tin coating per base box than was of value, the industry would be carrying a burden of 20 to 25 cents per base box, which, of course, would be passed on to the consumer. On 30,000,000 base boxes of tin plate this would be 15,000,000 pounds of tin a year, or approximately $7,000,000. Not only would there be the burden of unnecessary cost, but the actual waste of the world's mineral resources. The experiment itself only cost about $50,000.

When one speaks of conservation in food industry his usual thought is merely of saving some waste or by-product, and the question narrows down to some such problem as taking care of potato peelings. Conservation on its broader side is concerned chiefly with developing new and better ways of doing things which involve a saving of labor, money and materials, an enhancement of quality, and benefit to the public. It is true that there are plenty of waste products to work up in the canning industry, but it is also true that the more promising field is new developments. At the present time only 50 per cent of tomatoes delivered at the factory are turned out in the canned-food product. Thousands of tons of pear peelings are wasted because they do not make a vinegar that tastes like vinegar. Thousands of tons of fish scrap, particularly on the Pacific Coast and in Alaska, are wasted because easy and profitable methods of getting the values out of them have not been devised. Enormous quantities of green corn cobs are allowed to ferment, or are used for fertilizer and cattle food, when it is well known that there is much more sugar left in the cob than was taken off in the corn. Probably many kinds of bacteria which at present only destroy food could be made to do useful work, producing useful substances and chemicals, if they were thoroughly studied and put to work. Enormous quantities of sea food, costing nothing to grow, are at present unused by the human family because no one has prepared them in a way that would make them palatable and attractive. Immense numbers of shark and gray fish are not used because they happen to contain a small quantity of urea which in cooking turns into ammonia. The Department of Agriculture is giving this last matter attention, and they, or other chemists, will probably succeed in making this sea food as palatable and popular as the tuna fish. For a long time the tuna was absolutely ignored. It was a huge, slimy, soft fish so repulsive in its natural state that no housewife or cook would buy it and prepare it for the table. Somebody found out that if it was properly heated the soft flesh coagulated into firm flesh of attractive appearance and when it was cut up into small portions and canned, it became very popular. Millions of cases of this fish are now consumed.

It is not necessary to point out specifically a lot of things that lie waiting for chemists to do in the food industry and allied industries, because specific definitions tend to paralyze the imagination, and it is much better for individuals to hammer out their work along their own lines than to assign them definite and limited tasks.

It is, of course, proper to tell the American public that it should not neglect its chemists, and that if it will give them a chance they will show how to save waste, reduce costs, and make life easier and more comfortable. This is one end of the problem, the other being the chemist himself. He has to go out and dig up things for himself to do, and then act as salesman and sell himself to do them. After all, is that not fair, provided the chemist is fully warned by his teachers that this is what the game is, and this is the way he will have to play it?

The canning field is broadening every day and inviting some men of technical training to its assistance. Many other technical men should invite themselves, because the work is there, and the results must be obtained, and the public is waiting for them.

Regional Milk "Tribunals" Planned by Food Administration.

Regional milk tribunals, federally appointed, are the latest way of solving the whole milk problem of metropolitan areas. This plan has been adopted by the United States Food Administration following requests for aid from contending parties in the milk districts of Chicago and New York.

The plan of the Food Administration, according to G. Harold Powell, in charge of the division of perishable commodities, is to set up regional federal commissions on which producers, distributors, consummers, milk experts, and the public at large will be represented. These commissions will be formed, so far as possible, from citizens in the districts concerned. They will at once begin public hearings, giving all parties interested an opportunity to assemble and present all milk data and attendant facts that may bear upon equitable prices, decided according to the facts, and make reports that will advise the public of the true status of the milk industry in each of the districts named.

As the costs of producing and distributing milk vary, it is not expected that a uniform national price will be the outcome; but there is reason to believe that important reforms may be inaugurated both among producers and distributors.

Food Prices Up 29 Per Cent in Year.

General food prices in this country advanced 2 per cent from August to September of this year, according to an announcement by the Bureau of Labor Statistics.

Of the 27 staple articles of diet on which the compilations are based, 17 increased in price, seven decreased, and three remained stationary. Pork chops advanced 13 per cent, eggs 14 per cent and corn meal 24 per cent.

From September, 1916, to September of this year food prices as a whole increased 29 per cent, while a comparison of prevailing prices with those of 1914 shows that the cost of foodstuffs to the consumer jumped 43 per cent. Staple commodities included in the three-year advance were cornmeal, 148 per cent increase, flour 98 per cent, potatoes 63 per cent, and bread 55 per cent.

Convention of the National League of Commission Merchants.

The 26th annual convention of the National League of Commission Merchants of the United States will be held in Chicago, Ill., at the Congress Hotel, January 9, 10, and 11, 1918, for the election of its officers, and for the consideration and discussion of all problems effecting transportation and the marketing of fruits, vegetables, butter, eggs, poultry, etc.

The fact that the scope of the league's operations and representation extends to 45 of the largest and most important cities and marketing centers of the United States, will make the discussions at this annual meeting of vital interest to all sections of the country. The sessions are open to the public, and a cordial invitation has been extended to kindred organizations, produce growers and shippers, representatives of the press, including trade and agricultural papers, railroad officials and representatives, manufacturers of produce packages, weights and measures officials, and officials of the United States Department of Agriculture, state departments of agriculture and agricultural colleges.

Edible Vegetable Oils

By Glenn H. Pickard,
of Mariner & Hoskins, Chicago.

IN THE first half of this article, appearing in the last issue of the Journal, the production, composition and use of vegetable oils were discussed in general. Methods of winning, standards of comparison, chemical treatment and the food values of oils were taken up in detail. This section of the article deals with each oil individually.

Olive Oil.

Olive oil is the aristocrat as well as patriarch of all edible fats. As far back as reliable records go, mention is found of the olive and the oil it yields. The olive tree thrives in all the countries bordering upon the Mediterranean Sea, in Southern California and to some extent in Nevada. It must be cared for intelligently and persistently if good crops of well-flavored fruit are to be had. The strength and quality of the taste of olive oil vary materially with the strain of the tree and the agricultural and climatic conditions prevailing during growth. In order to keep a brand of oil uniform in flavor its purveyor will often buy oils from several sources and by blending the strong with the weak and the good with the poorly flavored maintain a high degree of uniformity in his product despite seasonal variations.

To make the best oil the fruit must be picked when just short of full maturity. In this condition, however, it is soft and easily bruised or broken. If such bruising occurs and much time elapses between the rough handling and the oil winning operation, leaving the oil in a ruptured, open envelope results in its splitting into acids and glycerine and soon deteriorating. For this reason the pressing of olives is not an oil milling industry conducted in large factories, but an individual or neighborhood affair. The first qualities of oil are won by expression in presses that vary from the ancient hand type still used in Africa to those of modern design employed in some parts of Europe and in the United States.

The usual process abroad is to grind the fruit in milling stones or edge mills. The paste is then placed in flexible, closely woven baskets which are piled one on top of another in the screw or hydraulic operated presses. This first oil, the best, is known as virgin or extra virgin. The cakes are removed in their baskets from the press, water sometimes hot and sometimes cold is poured in and the operations repeated. This oil is edible but should be graded second. The liquid pressed out, consisting of oil and water from the fruit, is run into settling tanks where the bits of pulp and the water go to the bottom. Then the oil is removed and allowed to settle and clarify, or sometimes filtered to hasten clarification.

The cakes are sent to plants where solvents extract the oil. This oil is called olive oil foots. It is usually very high in free acids and is used for soap.

In California the fruit is first hand picked to separate the unsound olives, is then crushed in power-driven edge mills of iron from which the pulp is transferred to the press room and wrapped in cloths in the form of flat cakes. These are placed on a heavy plate fitted with wheels. Between each wrapped cake a plate is placed to permit the flow of oil. The whole is run into the press. As the piston rises pressure is exerted until the head block is reached, thus squeezing the oil out. Several pressings are made. Between them the pulp is moistened with hot water or perhaps heated in suitable receptables in order to increase the yield. Extraction with solvents is not practiced in this country.

The first and second pressings, when good fruit is used, are edible but should be differentiated as first and second grade. The balance is either used for soap making or—a recent development for olive oil—refined and deodorized. Soap from olive oil, no matter what the source, is called castile. It has the property of splitting to the least extent of all soaps into acids and caustic when in water and is consequently prized as a toilet soap and preferred for use in such operations as scouring silk and wool. A very small amount of this oil is used for burning or for lubrication, but by far the greatest amount is used as an edible product, both as a salad oil and for frying and shortening. Although a considerable proportion of the off-grade product has found its way into the soap kettle, with the advent of the refining and deodorization process this amount will be curtailed to a varying but always appreciable extent.

Cottonseed Oil.

The seed of the cotton plant, the oil bearing portion, is the material to which the cotton fibres are attached. It is, therefore, picked with the white balls of cotton. Together they go to a gin where the cotton fibres are pulled off from the seed. If the cotton is of long fibre the seed is left clean enough for crushing with one operation. For years cottonseed piled up about the gins, was burned, dumped into flowing streams and considered a general nuisance. Now, however, it is the raw material for an important and thriving industry. When one realizes that for every 500 pounds of cotton fibre produced 1,000 pounds of seed are rendered available, one can form an estimate of the enormous size of the cottonseed handling industry. Since the United States raises about two-thirds of the world's supply of cotton it is easy to see that the industry is an important one here.

From the gin the seed is shipped to cottonseed oil mills. It arrives in all sorts of conditions dependent primarily upon the development of the plant and upon the amount of moisture contained. The moisture varies with weather conditions at time of picking and with the way the materials are treated from time of picking to arrival in the crusher bins. If not handled properly when wet heating and fermentation result.

The first step in crushing is to delint the seed, that is, remove the short fibres which cling tenaciously to the seed. This is done by passing it over revolving discs on the perimeter of which teeth are cut to catch and tear the fibre from the seed. The fibres thus caught are termed linters and generally are sold for nitrating.

Next the seed is passed through hullers which decorticate it and leave the meat in such shape that winnowing apparatus will separate them from the hulls. The meats, containing all of the oil, are now crushed by being passed over a set of rolls in preparation for the cookers. Here the moisture content is regulated by its addition or evaporation, until the meal, as it enters the press, contains approximately the same amount of water. The cooked, or, as it is termed, tempered meal is transferred to a hydraulic press of the box type where it is subjected to pressure of about 4,000 pounds to the square inch. The resulting oil is termed crude oil and in that condition sold to the refiners or soap makers. It is graded by tests measuring the color, the amount of dissolved material, and the free acids of the oil. Improper handling in the press room or seed of poor quality result in the production of oil below standard.

At the refinery the oil is first treated with caustic soda in predetermined amounts dependent upon quality. The emulsion which then settles to the bottom of the treating tank is used as soap stock. The oil, now neutral and several shades lighter, is either subjected to further treatment or, after clarification by settling or filtration, used directly. It is termed summer yellow and finds its way to consumers as a material for margarine, as a cooking oil or for hardening. When winter yellow is sought this oil is refrigerated and the glycerides of palmitic and similar acids are separated from those that are liquid. Two products result: an oil which will not chill in winter and a mushy mass which is used in cooking as a component of lard substitutes. When an oil of pale color is desired, either the summer or winter yellow is heated with fullers earth. This removes a large portion of the yellow coloring matter and leaves an oil of pale straw shade. If a compound lard component of pale color is desired the neutralized oil is first bleached and then refrigerated, thus making available a white compound. Large amounts of the winter and summer white oils, that is, the bleached product with or without refrigeration, find their way to our tables as salad oil. When, however, a practically tasteless oil is required, or if the seed was in poor condition and the oil therefore has a bad flavor, the deodorization process is resorted to. Oils that would otherwise have to be used for industrial purposes are thus rendered available food products. Further, if blending is desired without any deterioration of the flavor of one of the constituents, the tasteless oil is used, since its action is one of dilution only and does not affect the quality of the flavor of the oil to which it is added.

Thus we find cottonseed oil an important factor in the soap, the salad oil, the cooking fat, the margarine and the oil hardening industries. Still further, a small amount is mixed with kerosene to make miners' oil.

Peanut Oil.

Until recently the manufacture of peanut oil has

Photograph from U. S. Department of Agriculture.

PRESSING OLIVES (BACK); STRIPPING THE CAKE (FRONT).

been almost entirely confined to Europe, although the United States has produced crops of these nuts amounting to several million bushels annually for years past. This year our crop will be between 35,000,000 and 40,000,000 bushels. The people of this country have acquired the peanut eating habit to such an extent that our consumption of them whole, together with products like peanut butter, has accounted for all of the sound nuts of the crop, leaving only the damaged for oil crushing. These of course yield products fit for soap in the condition produced, but in some instances capable of refining to an extent making them usable in margarines. The ravages of the cotton boll weevil may give a new aspect to the peanut's status, since the latter is a good substitute for the former. Moreover, production of peanuts is now gradually exceeding the demand for the nut as a food.

Marseilles, France, is one of the great oil producing centers of Europe and peanuts are its most important raw material. Bordeaux, France, and Delft, Holland, also produce large amounts of peanut oil. The two last named furnish the bulk of the fine grade oil, while Marseille makes the deodorized and soap qualities. Peanuts are shipped to these crushing centers chiefly from the French colonies in West Africa, from China, Mozambique, Bombay and the Caromandel coast of India.

Practically all the nuts are shelled before crushing at all points in Europe. The milling practice at Marseilles, which is typical, consists in crushing the whole nuts and then screening them to remove all possible material from the meats, which are now folded into a press cloth cut like a cross with gussets darned in the corners. Low pressure is first applied to form the cakes and these are piled up on the platen of a press. Between each wrapped cake a thin piece of sheet iron is placed. When about twenty have been built up, the pressure is turned on and the oil forced out. This is genuine cold pressed oil and if the nuts were sound, is sweet and edible only after clarification. If unsound material was used it is capable of refining and deodorization. The cakes are now removed, ground and mixed with water. This pulp is cooked in a typical heater and again pressed. Sometimes the whole second pressing operation is repeated. The oil yielded by the last pressing generally finds its way into soap kettles.

In the United States those nuts which are unfit for eating as they are, furnish the raw material for the mills. Up to this time very little edible oil has been made directly. Several mills employing the expeller press are in operation on peanuts. The nuts are fed to the machine whole, that is, with the shell on. On this material the expeller does good work, there being fiber enough to give bulk. When the hydraulic press is used the box type of cottonseed mills is satisfactory whether the nuts are shelled or not.

When the best oil is desired the nuts are first cleaned, hand picked, shelled, and then blanched, that is, the red skin, which bears about 14 per cent of an inferior oil, is removed. This operation, when properly carried out, also removes the germ, the oil of which is below the highest standard. An oil produced cold from nuts handled in this manner would be received as a high grade salad oil. The next step is to grind the cake, mix it with the germs and red skins and press it hot.

Peanut oil is of pale color and pleasant nutty taste. When it contains free acids they are easily neutralized and the neutral oil deodorized so that the product can be used for blending with salad oils. Its chief use is as the soft oil in oleo and nut margarines and large quantities are imported annually for this purpose, while smaller amounts are brought in for salad oils. Of the oil produced in this country, that which is capable of refining is treated for the margarine and substitute lard makers, while the balance goes for soap. Some of the refined oil is used by those hardening it for food products.

Peanut oil production in this country is only just starting. More will be made this year than ever before. The future for this most desirable oil is bright.

Corn Oil.

The germ of Indian corn contains an oil which, when separated, is a useful addition to our list.

In the manufacture of starch, glucose, brewers' grits, corn meal and hominy, this oil germ must be removed to improve the other products. There are two ways of accomplishing this—the wet and the dry. In the first, the shelled corn is soaked in special solutions, then ground with water to crack open the grains. From these mills the ground material flows into settling tanks, where the germs rise and are removed. They are then dried and crushed, generally in expellers, this process yielding an oil relatively high in fatty acids and possessing foreign flavors. When hominy and corn meal are made the germ is separated by a dry process consisting of a slight steaming, followed by a grinding and screening operation which separates the germs with some fibrous material. This process yields a much lower percentage of germ. In some plants it is customary to extract the cake from the expellers with a solvent in order to increase the oil yield. This oil is adaptable for soap making only.

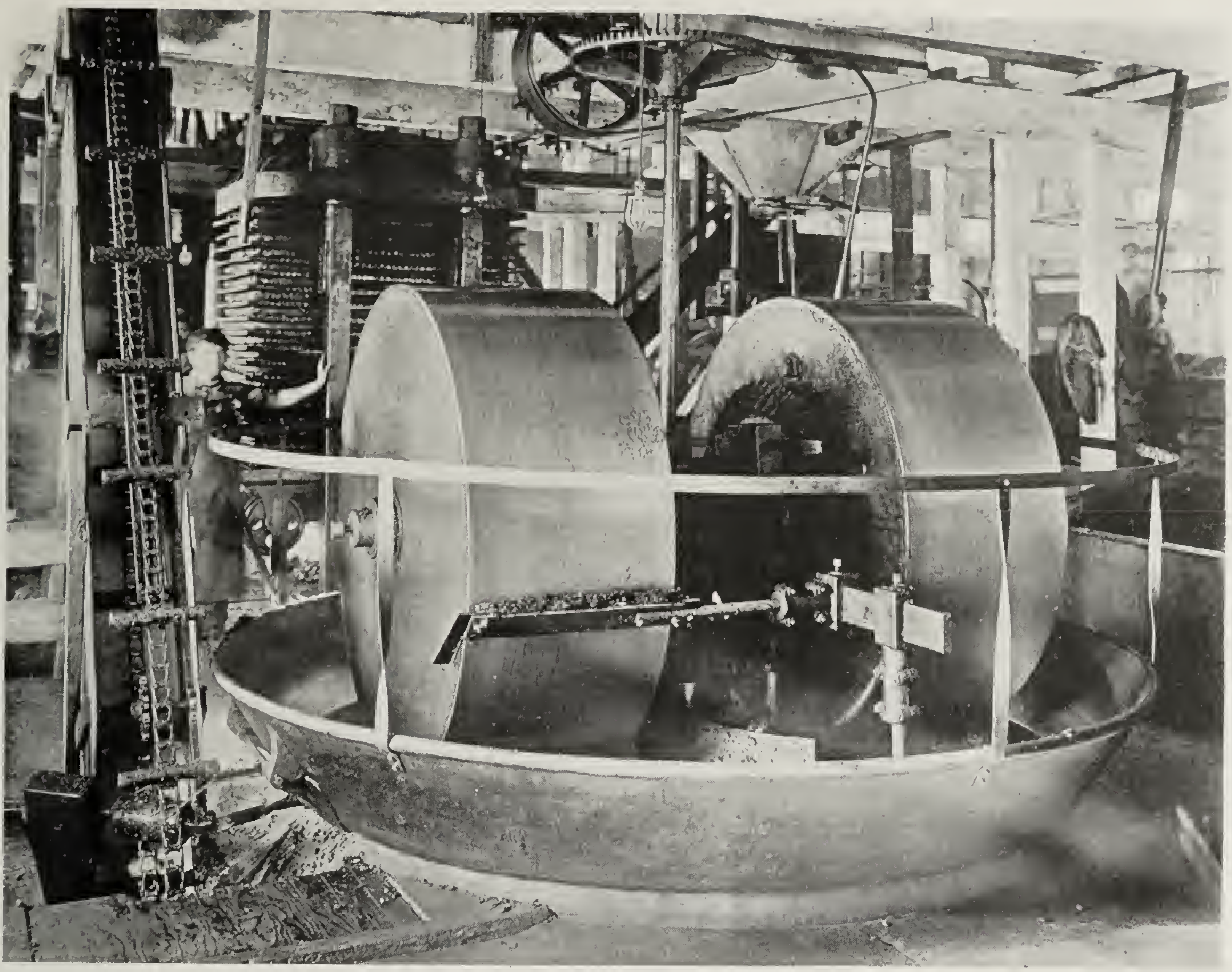
The crude corn oil when refined and deodorized is a pale straw color, with a slightly characteristic and pleasant taste. It is working its way gradually into our homes as a salad and cooking oil and into lard and butter substitutes. It is sure to increase in popularity.

Cocoanut Oil.

The cocoa palm, the source of cocoanut oil, is to be found on nearly all tropical coasts. The bulk of the world's supply comes from Java, the Dutch East Indies, the Philippines, the Straits Settlements, the South Sea Islands and Ceylon.

Ripe nuts are cracked open, the milk saved and the broken nuts dried either in the sun or on grids over open fires fed by the shells or in kilns. Sun dried meats are reputed to furnish the highest grade oil. Shortly after the drying starts, the meats shrivel and pull away from the shell and the latter is then removed and the meat dried further. Drying should be continued until there is not enough water present to start fermentation but inasmuch as the product is sold by weight, the tendency is to keep very close to the mark, with frequently resulting fermentation. The dried meat of the cocoanut is called copra. It can be readily seen that with so much transpiring after the removal of the protecting shell the oil cells of the cocoanut are subject to much damage and the oil yielded is very prone to high acidity.

In Europe copra is crushed in hydraulic presses. The Marseilles process is practically identical with that for peanuts except in the handling of the material previous to the first pressing. The copra is disintegrated or shredded after it has been freed of for-



Photograph from U. S. Department of Agriculture.

GRINDING OLIVES.

eign material. Unlike other oils, the first pressing is said to yield an oil which contains more free acids than subsequent pressings. This would be caused by the fact that the broken and damaged oil cells are on the outside and would, therefore, be more completely extracted than those underneath. In the Philippines and the United States there are several mills equipped with expellers only. The only drawback to them is that when set for high yield of oil their capacity is low, but against this can be placed a low labor cost for the operation. Inasmuch as copra is so highly concentrated an oil-bearing material, it is not adapted to the single pressing operation so generally employed in this country. Today the most common practice here is to run the disintegrated copra through the expeller, then grind and cook the cake and finish the extraction in the open plate hydraulic press.

Cocoanut oil is a white solid body at temperatures below 70. It is graded by its color, the clearer and purer the white color, the higher the grade. In commerce a basis is fixed for the amount of free fatty acids that may be present and a bonus is given for less and a discount demanded for more. The highest grade is termed Cochin oil and the second Ceylon. These designations are applied, no matter what the source, and are derived from the fact that oil from Cochin was of a purer white than that from Ceylon.

Enormous quantities of the crude oil have been used for years in the manufacture of soap. Cocoanut oil soap is white, giving a smooth and lasting lather, and is, therefore, in great demand. Recently, and particularly in this country, more and more of this oil has been used in food products, a use for which it is admirably adapted because of the variable melting points of the fractions into which it can be separated. In the refining of cocoanut oil it is first neutralized with caustic soda. Some is bleached with fullers earth. All is deodorized. It can be made a beautiful clear white, odorless, with only the slightest nutty flavor. By fractional crystallization at definite temperatures fats of a wide range of melting points can be secured. This fact is made use of in the preparation of oils for the confectioners and bakers who must have products of definite melting points. Large quantities go to them annually. Recently a pure cocoanut oil product has been placed on the market for home use in shortening and frying. Inasmuch as cocoanut oil has a high smoking point, it is second to none as a kitchen fat.

Lately there has been a boom in the production of nut margarines, the hard fat of which is cocoanut, while the soft is generally peanut—though cottonseed, corn and soya bean oils, when properly refined, may be used with it. The mixtures of the fats are made up, then churned with cultured milk, salted, worked and put into prints just as butter is. This country is surely going to follow the steps of many European countries by supplanting butter with margarines and saving the whole milk for other purposes.

Soya Bean Oil.

The soya bean has been cultivated in China, Korea and Japan since ancient times. In those countries it is a very important crop, the annual production mounting into millions of tons. The natives have obtained the oil in the past by the crudest methods but now have fairly modern pressure mills. In the Orient bean oil is used for burning, as a substitute for lard, as a lubricant, and for making waterproof clothing. The poorer classes use the crude oil in their diet despite its odor and unpalatability. The others improve the flavor somewhat by boiling and allowing it to settle.

In 1907, England started the use by Western peoples of the soya bean and its products. In that country the oil was used for soap first and then as a salad oil in limited amounts. It is claimed that the solvent extraction process is being used and that an edible oil is produced by refining this crude oil. Germany was importing soya beans before the war.

In our southern states the cultivation of the soya bean is increasing rapidly. It is estimated that the acreage this year will be close to 200,000. The cotton oil mills are crushing the beans without change of machinery. It is impossible to estimate what portion of the crop will be used for oil production. The process does not differ in any essential from that for cottonseed or peanuts except that the former must be ground finer and cooked longer. A cold pressing would give a very low yield because of the small amount of oil in the bean. In its crude state the oil cannot be used for edible purposes, but when refined and deodorized it yields a bland oil. The bulk of soya bean oil imported or produced is used for soap, in paints and varnishes, and in lard compounds or hardened fats.

Palm Kernel Oil.

This oil while one of secondary importance bears mention in this connection. It is derived from the seeds of the oil palm which thrives in Africa and South America. The fruit itself yields palm oil but because of its soft, perishable nature, it is crushed near its source. On account of the tendency to acidity and other deleterious conditions, palm oil is not edible. The palm kernel, however, has a hard shell which is removed by the natives, who then ship the kernels. A few come to the United States each year and are crushed in the South. The meats are handled as is copra. Europe, France and Germany consume several hundred tons of palm kernels annually. The oil can be used as a substitute for cocoanut in edible products but is generally utilized for soap making.

Sesame Oil.

The sesame plant is an annual one cultivated for the oil in its small seed much like a turnip seed. It is grown in a limited way in Africa, Asia Minor and India. Marseille crushes the largest proportion of the world's production of these seeds by the process previously described. Sesame oil is a natural winter oil of bland flavor and good color when produced from sound seed and is easily handled in the refinery when the seed is below standard. It is used as a salad oil and as a component of margarine. In Germany its presence up to 10 per cent of total fat is required by law. As is the case with all oils, some finds its way into soap.

Other oils which, because of the small amount consumed, need only to be mentioned, are sunflower oil, used in Russia, rape seed, colza, poppy seed, ravison and mustard. All these are pale liquid fats capable of being refined and used like the bland oils previously described.

The present disturbed condition of the world and particularly of its food supply has turned the attention of many to the development of new means of using our available fats and of new sources of supply to fill the shortage of those that are edible. It is freely predicted that as a result the vegetable oil industry, and particularly that of the production of edible fats, has been given an impetus that will, to a great degree, be permanent.

Photograph from U. S. Department of Agriculture.

SORTING OLIVES.

Bread from Unusual Flours

By Elizabeth C. Sprague and Ethel Loflin,
of the Home Economics Department, University of Kansas.

With the world's pressing need for conservation of wheat, the question of the substitution of other cereal flours becomes of increasing importance. In order to obtain definite information as to the practicability of using these substitutes in bread, the experiments described in this paper were undertaken. The value of a good quality of yeast bread as a contributory factor in a satisfactory diet can hardly be over-estimated. To what extent and by what methods other cereal products can be substituted for wheat flour without impairing the quality of the bread are questions that are of vital interest. These experiments are to some extent a continuation of work which has already been reported by Prof. E. H. S. Bailey and Prof. W. S. Long.

In addition to cornmeal and rye flour, which can be procured easily, corn flour, which is less common, and barley, rice, oat and kafir corn flours were used. As these latter could not be purchased in the form of flours, the whole grains were ground in a small spice mill, driven by a one-half horsepower electric motor, a process which, since the mill was not intended for such use, was laborious and not altogether ideal in its results. Repeated grindings and siftings through sieves of different meshes were necessary to reduce the grains to a uniform degree of fineness. The rice flour was ground fine enough to pass through a 40-mesh sieve. The barley and kafir corn passed through a 30-mesh, and the oat flour through a 20-mesh sieve. In each case the whole grain was milled, but the rice used was the polished variety, and while it gave the finest flour, this was hard and granular to the touch. The oat, barley and kafir corn were very similar in appearance to ordinary whole wheat flour.

Process of Breadmaking.

Without any modification of the usual household methods of breadmaking, the various samples of flour were used to replace wheat flour in many different proportions. All the work was done under carefully controlled, experimental conditions. All the materials were weighed, the temperatures during rising and baking were uniform and the methods of manipulation were exact, so that the results are strictly comparable. The breads made by substituting other flours were judged as to lightness, texture and flavor as compared with graham and white breads made under exactly the same conditions.

A variety of methods were studied, including both the long and short processes and using the dried yeast cakes as well as the compressed ones. The same results were obtained under all conditions, showing that the important factors are the kind and amounts of flour substituted and not the method of making.

Use of Rye Flour.

The results of the substitution of the rye flour are shown in Plate I. When 25 per cent, by weight, of rye flour was used with 75 per cent of patent flour, the resulting loaf, while darker in color, was quite as well risen and practically as fine grained as the loaf made of all patent flour. With 50 per cent rye, the loaf was less light but still good in grain and texture. The sample having 75 per cent rye to 25 per cent white flour was considered to be of fair quality but with a tendency to sogginess. The fifth sample on this plate made with half rye and half oats was very soggy and heavy with a decidedly unpleasant flavor. It is obvious that the decision as to the quantity to be used will depend upon personal preference. The 25 per cent bread could be made acceptable to almost any palate, the 50 per cent or even the 75 per cent proportions could be used if the taste for the characteristic rye flour has been cultivated.

Use of Oat Flour.

In using oat flour, the amounts ranged from 15 per cent to 75 per cent of the total weight of flour used. When as little as 15 per cent or 25 per cent was added, the breads were very good in every respect except color. To overcome the objectionable gray shade produced, cane molasses was substituted for the sugar in the dough. These breads were then quite satisfactory. When quantities above 25 per cent were used, the loaves decreased markedly in size (Plate II) and were very heavy and soggy. These results may have been due in part to the coarseness of the flour, which was the coarsest sample used. The character of the grain made it impossible, under the conditions stated, to grind it finer.

Use of Barley Flour.

The barley flour, which passed through a 30-mesh sieve, was used in the same proportions as the oat

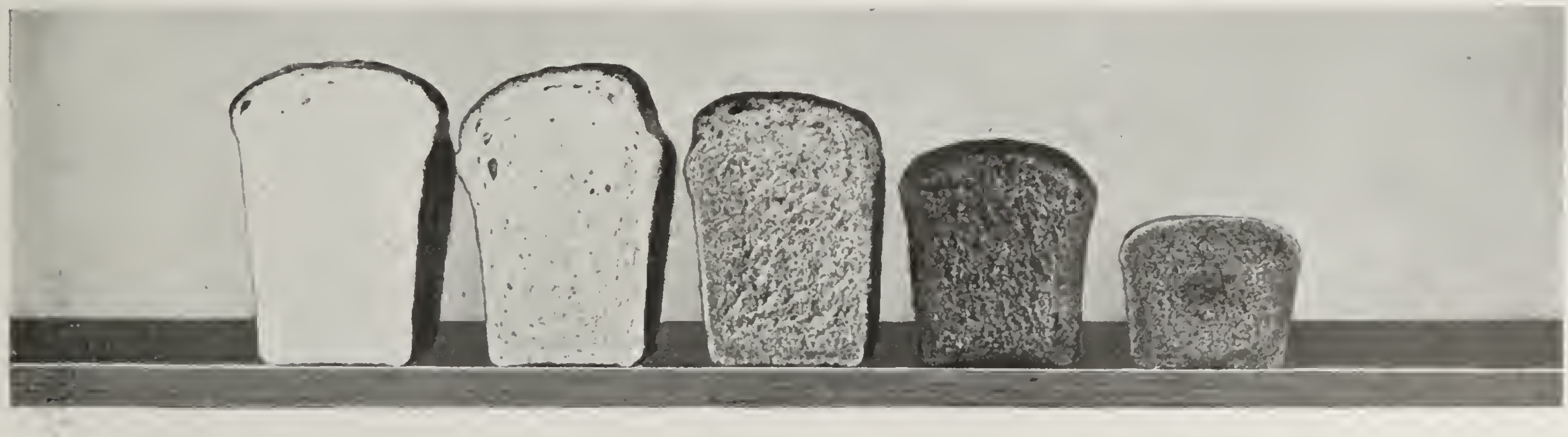


Plate I. All Wheat. 25% Rye. 50% Rye. 75% Rye. 50% Rye, 50% Oat.

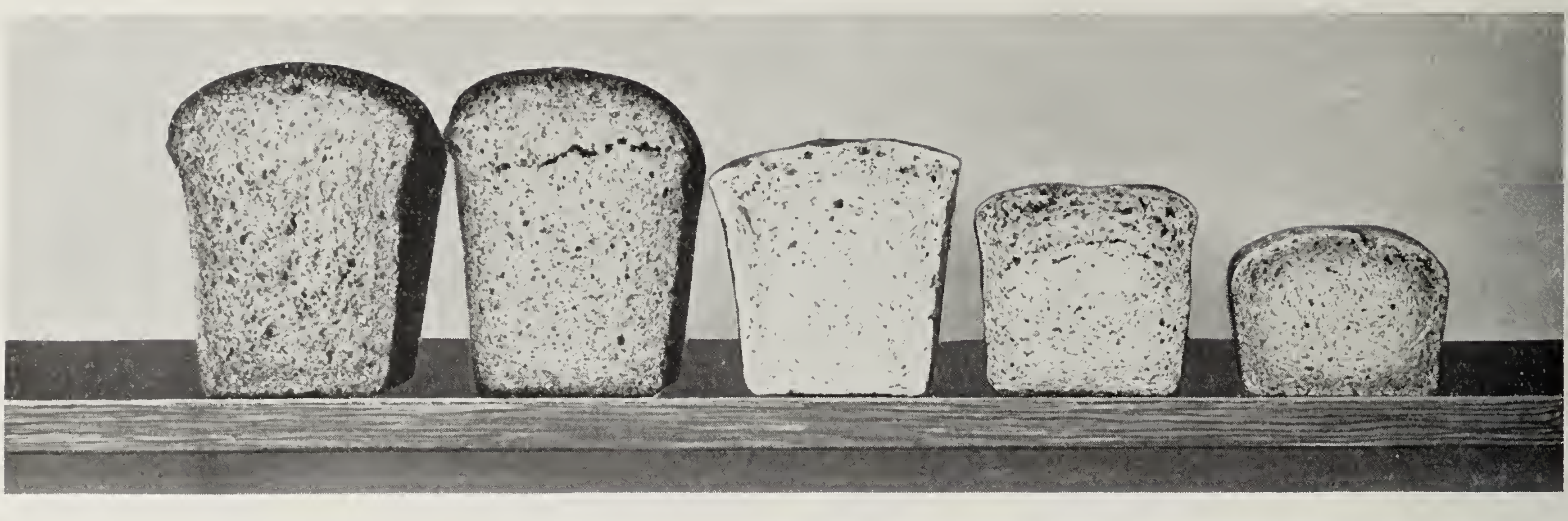


Plate II. 15% Oat. 25% Oat. 33% Oat. 50% Oat. 75% Oat.

Cracks are due to the fact that bread was dry.

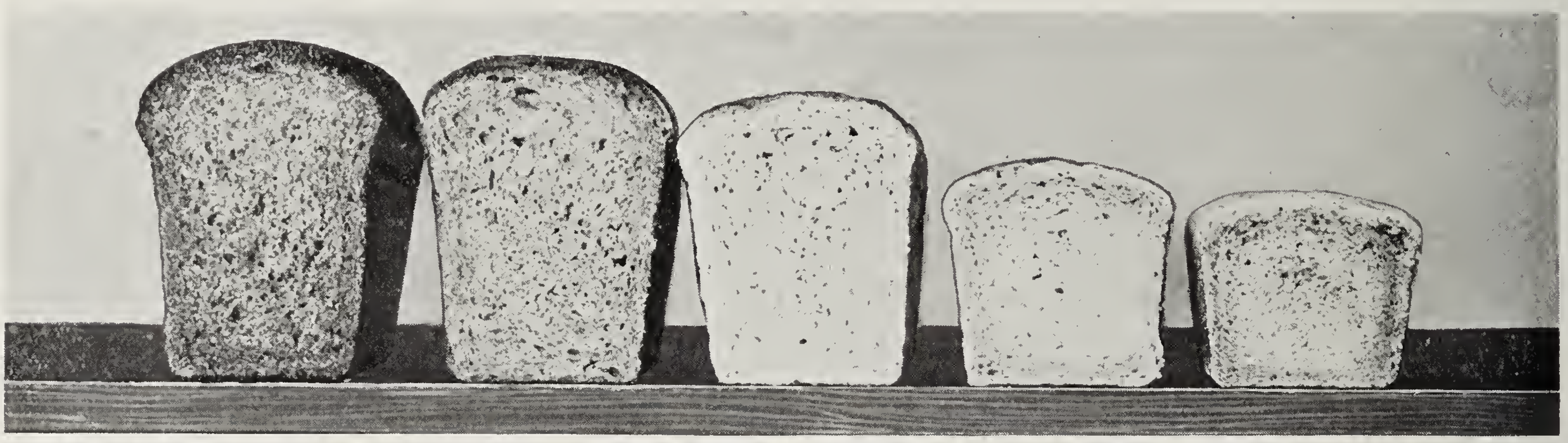


Plate III. 15% Barley. 25% Barley. 33⅓% Barley. 50% Barley. 75% Barley.

Color of first two is due to addition of molasses.

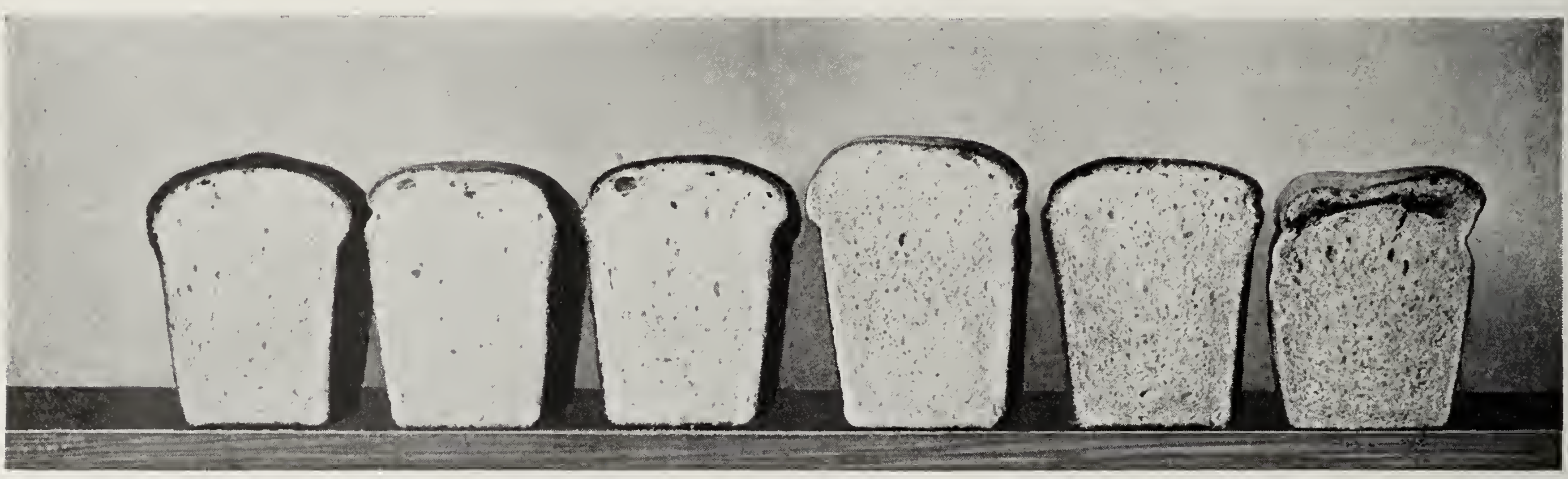


Plate IV. 15% Rice. 25% Rice. 33⅓% Rice. 15% Kafir. 25% Kafir. 33⅓% Kafir.

The cavity in the last is due to the turning over of the loaf when about half done.

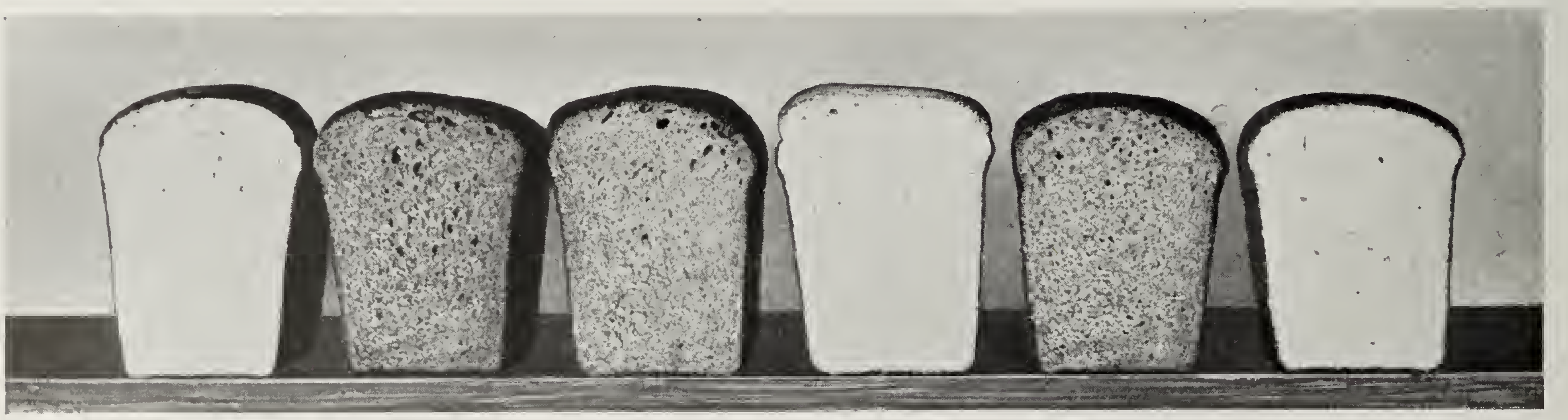


Plate V. All Wheat. 25% Oat. 25% Rye. 25% Cornflour. 25% Barley. 25% Cornmeal.

flour, that is, 15, 25, 33⅓, 50 and 75 per cent. The results were almost identical except that in all cases the loaves were lighter. In this case, too, cane molasses was used after it was found that the barley gave the bread an unattractive gray color. The 15 per cent and 25 per cent samples were quite satisfactory and one-third of the weight of the flour might be replaced by barley flour if it seemed necessary.

Use of Rice Flour.

The rice, though difficult to grind, was more completely reduced and made a flour fine enough, as already stated, to pass through a 40-mesh sieve. Since the larger proportions of the other flours had proved to be undesirable, the smaller proportions only were used in this case. As shown in Plate IV, 15, 25 and 33⅓ per cent of the rice flour all produced acceptable loaves, though the smaller proportions were somewhat more desirable. When one-third rice flour was used, a tendency to coarseness was shown, indicating that larger quantities would no doubt prove to be still less desirable.

Use of Kafir Corn Flour.

Kafir corn is a cereal best known as a stock food, but its use is also possible in many ways as a human food. It was reduced to quite a fine flour, readily passing through a 40-mesh sieve. Used in the same proportions as the rice, equally light breads were produced (Plate IV). The fault in the third sample (33⅓ per cent) was due to an accident. While the color was dark, the flavor was good.

Use of Corn Meal and Corn Flour.

These were used in the same proportions, 25 and 33⅓ per cent, with about the same results. The corn flour, being very much finer than the corn meal, produced a loaf of finer texture. The flavor of the loaf made with corn flour was not so good, having a somewhat raw or starchy taste. This might be overcome by some modifications in ingredients.

In Plates V and VI is shown a series of the different breads containing 25 per cent of the cereal named. In each group the first loaf is composed entirely of high-grade wheat flour. While there is some variation in lightness and grain, the loaves are surprisingly uniform in quality. All were tested by a considerable number of people and were eaten with relish.

Even with a considerable shortage of wheat there need be no shortage in our bread as long as we have a good supply of other cereals. It is evident that we must depend upon wheat in a large measure for the texture, lightness and flavor of our bread, but that wheat has no unique nutritive value. "The demand for wheat bread represents a habit of mind and palate rather than any non-replaceable need." The real and great need is the production of these flours on a commercial scale, their sale at a reasonable price, and their use not only in homes but in bakeries. With the more refined methods of milling applied to these grains and the production of finer flours, larger proportions of each might be used. In the light of our present experience, we feel justified in advising the use of 25 per cent of any of these flours. The one-pound loaves so made vary only slightly in nutritive value, as represented by their protein content or the number of calories yielded.

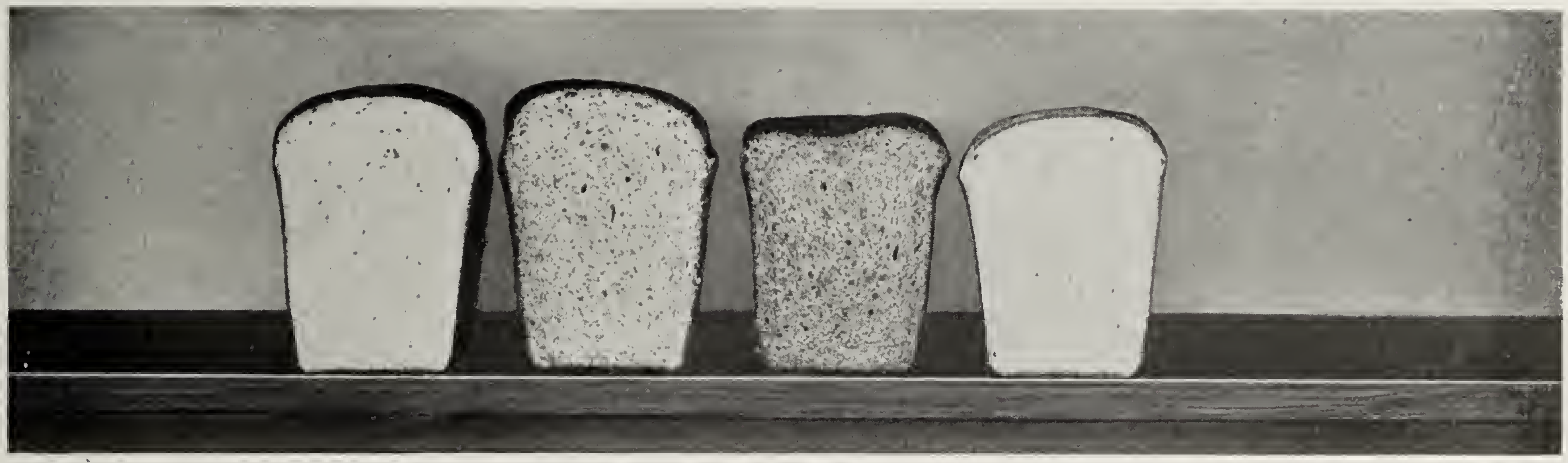


Plate VI. All Wheat. 25% Graham. 25% Kafir. 25% Rice.

At the American Specialty Manufacturers' Convention.

At the Ninth Annual Convention of the American Specialty Manufacturers' Association, held at the Hotel Traymore in Atlantic City on October 31 and November 1, the keynote of every speech, and of the convention as a whole, was co-operation with the Government and the Food Administration and a deep sense of the fact that we are a country at war and as such a country we must be in the closest friendly relations among ourselves.

President William L. Sweet opened his address with a hearty pledge to the Food Administration on behalf of the Association. He spoke of the War Committee formed to keep in touch with the Administration, and its activities, of the possibilities of aid through publicity and advertising, the necessity for finding some substitute for tin containers, and the patriotic importance of keeping down prices to the consumer and guarding against unreasonable profits. He reported on the appointment of Mr. F. H. Millard, a director of the Diamond Crystal Salt Company, to a position in Washington where he will represent the Association in co-operating with the Food Administration.

Mr. Walter H. Lipe, former president of the Association and now chairman of the Legislative Committee, delivered a stirring address on Sherman's keynote, "War is hell," declaring that business can not be out for itself alone any more, but that every one must stand together to win this war.

Opinions Under Rules and Regulations of the United States Food Administration

Definite rulings interpretive of the various features of the Food Control Law are of interest to the food industry generally for the reason that from time to time additional commodities will undoubtedly be placed under strict government control.

In answer to various inquiries received, the Food Administration holds that the commodities mentioned below are included within the Rules and Regulations promulgated by the President's license proclamation of October 8, 1917:

LICENSED COMMODITIES.

Package or Bulk.

If given commodity is named among the licensed articles in the President's proclamation of October 8, 1917, it is included within the licensing program whether in package or in bulk, and even though sold under a private brand, coined name or proprietary trade mark. For example—all cooking fats, all oatmeal and all rolled oats are included even though sold in packages under private brands.

The following are also included: All hominy, whether canned or not; canned hulled corn; all starch made from corn, including laundry starch; tomato pulp; tomato paste; tomato puree; all cooking fats; domestic and imported sardines; self rising and mixed flours, if they consist chiefly of one or more of the flours expressly mentioned in the President's proclamation; sliced bacon, whether in containers or not; dried beef; chipped beef; canned corned beef; canned pork and beans, consisting chiefly of canned dried beans; potatoes, including sweet potatoes.

UNLICENSED COMMODITIES.

The Food Administration holds that the commodities mentioned below are not included within the meaning of the President's license proclamation of October 8, 1917:

Mince meat; chili sauce; catsup; soups; lima beans canned from fresh stock; baking powder; corn chops; sausage; deviled meats; hamburger steak; mixed potted meats; lunch tongue; veal loaf; shredded wheat (distributors not licensed); cream of wheat (distributors not licensed); corn flakes (distributors not licensed); olive oil; macaroni (distributors not licensed); sauer kraut; feeds, unless they are expressly covered by the President's proclamation, for example, corn being mentioned in the proclamation is included even for uses as feed, but mixed feeding stuffs consisting of licensed and unlicensed commodities are not included, insofar as the distributor is concerned. However, the manufacturer, as distinguished from the distributor, must be licensed if he uses wheat or rye in any feed whatever. Mixed poultry feeds are not included, insofar as the distributor is concerned, but in this connection it is to be noted that Special Rule No. 4 under "GRAIN" forbids the use in poultry feed of wheat that is fit for human consumption and forbids the use of any wheat whatever in excess of ten per cent (10%) in poultry feeds. Any one manufacturing such a product in which wheat or rye occurs must be licensed.

FLOUR IN PACKAGES.

Supplementary Instructions—Small Package Ruling and Revised Package Differentials.

On November 1 the following instructions were forwarded to all mills:

Letter No. 1155.

TO ALL FLOUR MILLS:

"As a part of the regulations governing milling, no flour mill operating under agreement with the United States Food Administrator shall after December 1, 1917, sell flour in other than one-eighth, one-quarter, one-half barrel or larger packages; and effective January 1, 1918, no mill shall ship flour in packages other than those described.

"The elimination of small flour packages may temporarily disturb the business of flour millers who have established trade on these small packages. This action is, however, deemed necessary as a means of keeping the cost of flour to the consumer as low as possible and has been adopted only after full and careful consideration of all factors involved.

"Millers and others must, therefore, accept it as a necessity of war and comply with it in a spirit of patriotic service.

"In districts of congested population, where the small package is established, no doubt retailers will meet the situation by the sale of flour from bulk packages delivered in grocers' sacks.

"Please note carefully that the sale of small packages by mills is prohibited effective December 1, and the shipment of other than standard one-eighth, one-quarter, one-half barrel and larger packages is prohibited effective January 1, 1918."

This rule now also applies to all licensed millers, blenders, reconditioners, packers, wholesale and jobbing packers, etc., with the intent to prohibit the packing of small packages by others than retailers who will pack from bulk, without brands, for small retail purchasers.

These regulations govern all wheat products excepting graham flour, entire wheat flour, wheat cereals, table bran and gluten flour.

Special pastry flours, pancake flours, self-rising flours, etc., where the previous packing and sale of such flours is represented by an established trade in cartons or small containers, may be packed and sold in the future only under special permits for which application must be made to the United States Food Administration, Milling Division, No. 74, Broadway, New York.

Applications for such permits must be accompanied by sworn statements showing in detail the kind and mixture of the flour for which packing and sale permit is desired; size and kind of package to be used, and a complete statement showing the number and kind of packages, approximate mixture of products, etc., sold during the year November 1, 1916, to November 1, 1917.

Upon receipt at this office of such applications, permits may be issued for the continuance of packing and sale of proportionate amounts of like kinds and packages, as indicated by past records.

Special attention is called to the fact that sales in packages smaller than one-eighth barrel must not be made on and after December 1, 1917, and that mills shall not ship or pack in packages smaller than one-eighth barrel on and after January 1, 1917.

The above regulations make effective December 1, 1917, the following:

PACKAGE DIFFERENTIALS—BASIS 98-LB. COTTON OR JUTE SACKS.

196	lb. wood	20c over basis
98	lb. wood	60c over basis
140	lb. jute	Same as basis
96	lb. cotton (2 to barrel)	20c under basis
49	lb. cotton (4 to barrel)	10c over basis
48	lb. cotton (4 to barrel)	10c under basis
24½	lb. cotton (8 to barrel)	20c over basis
24	lb. cotton (8 to barrel)	Same as basis
49	lb. paper (4 to barrel)	Same as basis
48	lb. paper (4 to barrel)	20c under basis
24½	lb. paper (8 to barrel)	10c over basis
24	lb. paper (8 to barrel)	10c under basis
Outside jute or cotton envelopes		35c per bbl. addl.
Outside paper envelopes		30c per bbl. addl.

Where contract is based on 98-lb. cotton or 140-lb. jute sacks, and buyer furnishes sacks, 25 cents per barrel reduction in price shall be made for buyer's sacks.

Where buyer furnishes smaller than 98-lb. or 140-lb. sacks flour shall be invoiced on the basis of above differentials and buyer credited at current market value of mill brand sacks of same size and kind as sacks furnished by buyer.

Seller or buyer may not have the option of shipping flour in cotton or jute sacks where either has been specified at time of sale, unless both parties agree to these changes at time of shipment.

U. S. FOOD ADMINISTRATION,
Milling Division
General Offices, 74 Broadway, New York.

November 14, 1917.

AVERAGING TO DETERMINE COST.

The rules promulgated by the President November 1 for the governing of licenses under the Food Administration Act of August 10, 1917, provide, with respect to certain commodities specifically named in said rules, that they shall be sold at no more than a reasonable advance over the actual purchase price of the particular goods sold, without regard to the market or replacement value at the time of such sale.

The Food Administration now determines and announces that for the purpose of determining such basis of cost, the owner may average the purchase price to him of goods actually purchased by him before November 1, 1917, if he desires to do so; however, if he exercises this option he must not in any case average the cost of one commodity with another; for example, he may average the purchase price to him of all beans purchased before November 1, 1917, but he must not average beans with peas or rice, or with any other commodity whatever. Beet sugar must not be averaged with cane sugar.

Where two or more purchases of the same grade have been made, the owner may, at his option, average their purchase price to him. He must not average one grade of a commodity with another grade. If the commodity is in containers, he must not average one size with another size.

One average only: If the merchant determines to average and once exercises that option, he must not again average his cost of the same commodity; for example, if as a basis of determining profit in conformity with the President's regulations, he averages the cost to him of two or more lots of corn actually purchased before November 1, 1917, whether delivered or not, he must not again average any lot whatever of corn.

November 17, 1917.

COMBINATION SALES—FOOD COMMODITIES.

On and after this date all combination sales of food commodities are forbidden with the one exception stated below.

The sale of one or more food commodities, upon condition that the purchaser shall buy one or more other food commodities from the seller, is regarded as a combination sale within the meaning of this ruling.

Combination sales frequently result in the sale of more foodstuffs than the particular purchaser would ordinarily buy, and are therefore determined to be a wasteful practice within the meaning of Section 4 of the Food Administration Act of August 10, 1917.

Exception.

Pending further notice, and as a wheat conservation measure, the dealer may sell sugar in combination with cornmeal, at the rate of one pound of sugar with two of cornmeal. No other combination will be permitted, nor will any other ratio than that here stated be allowed.

The dealer shall not sell either the sugar or the cornmeal at a price yielding him a profit greater than he has normally enjoyed upon the particular commodity.

The dealer is not required to make combination sales of sugar and cornmeal, but may do so at his discretion.

CONTRACTS.

Contracts Made Before October 15, 1917.

General Rule No. 16 covers this subject.

Contracts Made on or After October 15, 1917.

Any such contract that violates the Rules and Regulations promulgated by the President following his license proclamation of October 8, 1917, is considered invalid.

Contracts Subject to Rule No. 14.

It should be particularly noted that General Rule No. 16 grants no exception as to General Rule No. 14 and furthermore that General Rule No. 14 provides that in certain cases "Licensee shall not sell or deliver." It follows, therefore, that a particular contract made either before or after October 15, 1917, may be valid, and yet that delivery under it is forbidden by Rule No. 14 by reason of the circumstances existing at the delivery date. For example, the licensee at the time of delivery may know or have reason to believe that the delivery will give the purchaser a supply in excess of his reasonable requirements for use or sale by him during the period of sixty (60) days next succeeding. A general rule in all such cases cannot be made by the Food Administration. Each case of that kind must be determined according to its own facts and circumstances.

Reports.—In this connection it is to be noted that Rule No. 16 requires reports to be made of all contracts whatever made before October 15, 1917, that will not be fully performed on January 1, 1918.

Contracts Subject to Approval of Price.

Special Rule No. 1, Page No. 21, as to licensees engaged in the business of canning food products, and Special Rules No. 1 and No. 2, Page No. 14, as to dried beans and dried peas, are held to cover contracts made subject to approval of price.

General Rule No. 6—Resales Within the Trade.

The Government looks with disfavor upon resales within the trade, without reasonable justification, especially if such sales tend to result in a higher price to the retailer or to the consumer. Each case must rest on its own merits. The Food Administration cannot undertake to determine specific cases in advance or to give its approval to any particular resale. Persons who are parties to such resales must be prepared to show that they have not violated General Rule No. 6. The general principle is that the goods ought not to bear more than one wholesale profit nor more than one brokerage, but there may be some specific cases in which there is reasonable justification for the resale.

BROKERS.

When the resale is made through a broker his position is similar to that of the two dealers concerned in the transaction and he must be prepared to show that the sale has reasonable justification and that it does not tend to increase the price to the retailer or consumer.

SUGAR.

With respect to resales, the special rules as to sugar should be carefully noted.

Brokers—Commission Merchants.

DEALINGS FOR THEIR OWN ACCOUNT.

Attention is called to General Rules No. 6, No. 7 and No. 8, and to Special Rules No. 3 and No. 4, as to brokers. The important points to be noted are:

(1) A broker must not deal for his own account unless he comes within the permission granted by General Rule No. 7.

(2) He must hold a license both as broker and as dealer.

(3) He must comply with Special Rule No. 4 as to brokers by noting the exact facts on his account of sales.

(4) Sales made through him or by him are in all respects subject to General Rule No. 6.

(5) In any case where a broker sells for his own account goods that he has purchased from a principal, and has received or is entitled to receive a brokerage on such goods, he must deduct such brokerage in determining the lawful margin of advance he is entitled to receive as a jobber or dealer.

Double Profits—Manufacturers and Jobbers.

The licensee is not permitted to take two profits for the same transaction. Manufacturers who job their own goods may include as part of their cost the legitimate expense actually incurred in such jobbing, but in no case will they be permitted to add two profits covering the same service.

With respect to licensees engaged in the business of milling flour and feed from wheat Special Rule No. 14 controls.

Transfer of Licenses.

Licenses are not transferable.

Retail Grocers Subject to License.

A retailer whose gross sales of all food commodities exceed $100,000 a year is subject to license if he handles any one of the controlled commodities, notwithstanding the fact that his total sales of licensed commodities may be less than $100,000 a year. In estimating his sales he may disregard articles that are not food commodities, as, for example, woodenware, matches and kerosene.

Commodities Covered by Special Rules on Profits.

All commodities named in the heading of Special Rule No. 1 governing "Wholesalers, Retailers and all other Dealers";

Note also Special Rules and Regulations governing wholesale dealers in sugar and those persons subject to license who deal in sugar at retail;

Also Special Rule No. 5 regarding dried beans and dried peas;

Special Rule No. 4 as to rice millers;

Special Rule No. 4 as to licensees engaged in the business of canning food products; and

Special Rule No. 11 respecting cotton seed, cotton seed oil, cotton seed meal, cotton seed cake, peanut oil, soya bean oil, palm oil and copra oil, peanut meal and soya bean meal.

Note also Special Rules Nos. 11, 12, 13 and 14 under the Rules with respect to wheat, rye, corn, oats, barley, wheat flour, rye flour, barley flour, oatmeal, rolled oats, corn grits, corn meal, hominy, corn flour, starch from corn, corn oil, corn syrup and glucose.

Goods Purchased Before Law or Regulations Took Effect.

The statute is applicable to all sales made after the law was passed on August 10, 1917, and the regulations are applicable to all sales falling within the license program proclaimed by the President October 8, notwithstanding the fact that the particular goods in question may have been purchased many weeks, months or years before.

Licensed Commodities Manufactured But Not Sold.

Wholesale grocers who purchase sugar or other commodities included in the President's license proclamation of October 8, 1917, and use such commodity in the manufacture of other products that are not licensed need not, pending further notice, make reports to the Food Administration respecting such quantities actually used in manufacture by them.

Instructions on Food Administration Export Purchases Effective November 15, 1917.

Millers, jobbers, blenders, etc., selling flour to or through the United States Food Administration for export, other than their own manufacture, will on sales and offers made on and after November 15, 1917, be permitted to include in such sales and offers made to the United States Food Administration only such flour as may be shown to be originally manufactured by mills who have signed agreements with the United States Food Administration. Offers must be confirmed in all cases by statements of the mill origin of the flour offered.

On monthly allotments to mills of export flour, mills may only include in their allotment flour of their own manufacture. Attention is called again to Explanation of Rules and Regulations, Circular No. 2, page 6, lines 34 to 37:

"The mill may at its option arrange with other mills in the same district to accept all or any portion of its monthly quota, but it shall assume all responsibility for the shipment of its determined allotment."

Mills desiring to offer flour not of their own manufacture, in excess of their allotment, but in all cases flour of mills manufactured under agreement with the United States Food Administration, will be considered as jobbers, and as such, flour purchased by them for resale to the Food Administration can only be bought by the Food Administration at the "averaged" price of purchase made by the Food Administration from mills of flour of their own manufacture and in amounts proportionate to proven previous established trade of like nature. These offers may be made subject to these conditions and flour as offered purchased by the Food Administration as soon as this "averaged" price is determined.

U. S. Food Administration,
Milling Division.

Exports.

The Rules and Regulations do not apply to export sales, but they do include sales to persons within the United States, even though the purchaser is an exporter, as, for example, an export commission house. It must be noted, however, that the exporter is required to be licensed; and is governed by the Rules and Regulations insofar as his purchases are concerned.

In cases where export licenses are necessary, applications for them should be made to the War Trade Board or to the proper representative at the particular port.

Persons within the United States itself, who buy from or sell to persons in Porto Rico, the Philippines, or their possessions or territories of this country, are governed by the Rules and Regulations.

General Rule No. 13—Imports.

By reason of the shipping hazards and the conditions attending the import business General Rule No. 13 is so interpreted as to permit the purchase of imported products considerably in advance of requirements, provided the quantity in this country not actually owned at any one time by any licensee is not in excess of the quantity permitted by the regulation.

Sales of Sugar to Manufacturers.

The United States Food Administration has modified its order prohibiting the sale of sugar to manufacturers and confectioners by advising refiners and distributors to deliver to them such quantities as, when added to their stock on hand, will amount to 50 per cent of their normal requirements. This restriction will be in force until January 1. The wire sent to refiners and distributors is as follows:

Owing to great distress to employes, confectioners and manufacturers of gum, cordials, syrups and ice cream, the Food Administration herewith modifies former instructions as follows: First, every confectioner and manufacturer who wishes to buy sugar should disclose to you his stocks of sugar on hand, and agree to reduce voluntarily his use of sugar by 50 per cent until January 1, his combined purchases and stocks not to exceed this requirement. Second, in order to obtain 50 per cent of his requirements now and hereafter he must not buy or attempt to buy Louisiana clarified, plantation whites or open kettle sugars at more than seven twenty-five, less 2 per cent, Louisiana points. Third, before selling, obtain his assurance on these points, and request your jobbing trade likewise."

License Numbers on Documents.

License numbers should appear on documents that go to persons outside of the organization of the licensee; it is, therefore, not necessary to put license numbers on papers that are interoffice communications, but they should appear upon order blanks placed in the hands of salesmen if these blanks are presented to or signed by prospective purchasers.

Fixed and Uniform Margins of Profit.

The Food Administration will not undertake to fix in terms of figures the profit, price or margin of advance that any distributor, wholesaler or retailer may charge upon any commodity; the obvious and necessary reason for this is that distributors' costs of doing business differ widely throughout the United States, and even within the same state or city.

In any case where the Food Administration or one of its representatives suggests in terms of figures the margin of advance that would be deemed proper, it is to be understood that this figure is the tentative guide that the Food Administration adopts for its own convenience in examining complaints, or the reports of licensees, or other evidence and information secured by the Government.

Computation of Costs.

The Food Administration cannot undertake to advise dealers specifically concerning their methods of computing costs, but insists merely upon the rule that the distributor shall not sell any of those commodities covered by the reasonable profit rules at a margin of advance above the delivered cost to him of the particular goods, yielding him a greater profit than he has normally enjoyed upon that commodity.

Prices Paid by Federal or State Government or Institutions.

Prices at which the Government itself has purchased any food commodity do not determine the prices at which licensees may sell the commodities named in the special regulations as to profits. The commodities so covered by profit rules must not in any event be sold at more than a reasonable advance over the actual purchase price of the particular goods sold.

Moreover, bids, contracts and sales to the Federal or state government or municipalities or institutions should be made in conformity with the regulations as issued, if the commodities sold are licensed.

Sugar—Package Differentials.

Whenever a dealer sells broker packages of sugar, having bought such sugar in bulk, he may include in his cost the differential that refiners are permitted to charge on such packages.

Unlicensed Retailers.

All retailers are subject to the various provisions of the Food Administration act, with the sole exception that those doing a business of $100,000 a year or less in food commodities are not required to be licensed. They must, however, observe all other provisions of the Act.

General Rule No. 22—Display of License Number.

One corporation or partnership having various branches doing business under the same name requires but one license number. The contracts and other documents mentioned in this rule should bear the license number whether issued by the main office or the branch office.

General Rule No. 22—Advertisements.

If a licensee has an advertisement inserted in a newspaper and his advertisement contains a price list or quotation by him, then the advertisement should include the license number.

General Rule No. 22—Telegrams.

The licensee need not include his license number in a wired quotation delivered to a telegraph company, but the licensee's number should appear upon any confirmation of the telegram that is itself mailed or actually delivered to the addressee.

RETAIL PRICES,

Average Price per Pound	Average Price per 100 Calories	CANNED FOODS	Augusta, Me.	Boston, Mass.	Providence, R. I.	New York, N. Y.	Trenton, N. J.	Philadelphia, Pa.	Washington, D. C.	Richmond, Va.	Raleigh, N. C.	Montgomery, Ala.	Buffalo, N. Y.	Harrisburg, Pa.	Cincinnati,
13.3	14.30	String Beans, No. 2, Std., 1 lb. 3 oz......	14	15	12	13	19	15	15	15	15	15	25	14	18
13.0	2.96	Corn, No. 2, Std., 1 lb. 4 oz..............	18	15	14	18	19	18	15	15	20	25	25	14	15
12.7	5.01	Peas, No. 2, Std., 1 lb. 4 oz..............	15	15	15	17	20	17	12½	12½	25	25	20	14	15
8.6	8.60	Tomatoes, No. 3, Std., 2 lb. 1 oz.........	18	18	18	18	15	20	18	18	20	13	25	17	18
13.5	6.43	Peaches, No. 2½, Std., 1 lb. 13 oz..... ..	20	20	20	22½	22½	37½	25	30	35	30	35	23	20
14.1	2.01	Pineapples, No. 2½, Std., 1 lb. 14 oz.....	22	23	.....	25	22	26	30	25	25	35	30	23	18
26.6	4.03	Salmon, No. 1, tall, red Alaska, 1 lb.....	27	25	24	25	27	25	30	20	20	20	25	28	28
56.6	6.15	Sardines, ¼, oil key, Dom., 3¼ oz......	12½	7	7	7	16	17½	8	8	10	25	20	14	10
		CEREAL PRODUCTS													
6.5	.40	Wheat Flour, No. 1, Pat., 49 lb. bag....	300	340	320	340	350	380	320	325	325	365	306	350	350
6.8	.43	Rye Flour, Std., 24½ lb. bag...........	117½	196	160	190	171	160	.....	.....	.....	.....	.....	.....	145
7.2	.44	Graham Flour, 10 lb. bag...............	66	70	75	80	60	.....	80	75	75	80	90	.....	78
18.9	1.14	Shredded Wheat, 12 oz..................	12½	12	12	13	12	14	15	15	15	15	14	11	15
14.0	.85	Cream of Wheat, 1 lb. 12 oz...........	23	22½	22	20	22	25	25	25	25	25	25	23	25
10.4	.57	Quaker Oats, 1 lb. 4 oz................	10	9½	10	10	10	9½	12	20	15	10	12	9	12
8.0	.44	Rolled Oats, Bulk, lb..................	6	7	6	7	6½	7½	7	15	15	.....	6½	7	7
11.5	.72	Rice, Fancy Head, lb..................	8	12	11	10	12	14	10	12½	12½	10	15	12	12
24.1	1.48	Kellogg's Tstd. Corn Flakes, 8 oz.......	12	10	12	11	10	14	12	10	15	12	12	10	12
7.2	.44	Corn Meal, lb..........................	6	7	7	7	7	8	6	5	7½	5	10	7	7
8.6	.53	Hominy Grits, lb.......................	.....	7	8	7	7	8	7	8	8½	7	10	7	7
11.5	.71	Pearl Barley, lb.	9	8	9	8	8	8½	8	10	15	20	.....	.....	8
9.2	.78	Bread, lb.	10	7	7	10	7	10	8	9	7	12	9	8	10
17.2	.91	Crackers, Bulk, Soda, lb...............	12½	18	16	14	19	15	14	12½	15	20	.....	17	20
24.4	1.29	Uneeda Biscuit, 4⅝ oz..................	7	7	7	7	7	6	7	8	8	7	7½	5	8
13.0	.80	Macaroni, Bulk, lb.	10	.....	13	12	12½	11½	12½	18	15	16	15	12½	15
10.4	.64	Corn Starch, lb.	8	6	10	8	9½	.....	10	15	10	10	12	10	12
		DRIED FRUITS													
17.5	1.33	Evaporated Apples, lb.	.....	25	.....	22	.....	15	15	20	20	18	.....	.....	20
16.9	1.41	Evaporated Peaches, lb.	.....	14	18	18	15½	21½	20	20	20	20	18	17	18
14.2	.91	Raisins, Seeded, per pkg., 15 oz.........	13	12	12	12	13	15	12	15	15	15	15	14	15
16.1	1.39	Prunes, Medium Sized, lb..............	15	15	15	16	13	15	14	15	20	20	20	17	15
		SUGAR AND SYRUP													
8.3	.46	Granulated, lb.	10	10	10	9	10	10½	9	10	11	10	9	9½	9
8.5	.59	Corn Syrup, 10 lb. pail..................	90	.....	72	100	80	110	75	85	90	80	90	.....	90
25.3	1.71	Comb Honey, lb.	25	30	30	25	30	30	35	20	20	25	30	.....	25
30.6	1.36	Cocoa, Bulk, lb.	.....	.....	25	20	20	30	30	35	45	50	30	25	30
		FATS													
50.5	2.13	Bacon, Sliced, lb.......................	44	50	47½	45	48	52½	50	45	58	60	50	49	45
51.7	1.48	Creamery Butter, Fancy, lb............	52	47½	48	52	55	60	60	55	55	50	52½	49	54
33.9	.83	Pure Leaf Lard, lb.....................	33	32	34	32	32	34	35	35	35	33	.....	35	32
34.6	1.01	Oleomargarine, Uncolored, lb......	33½	33	33	30	33	36	35	34	40	40	35	32	35
59.3	1.48	Italian or Spanish Olive Oil, qt. tin......	90	90	110	140	115	115	100	75	100	65	120	.....	125
32.9	.82	Cottonseed Oil, qt. tin..................	.....	55	62½	50	75	42½	60	60	75	.....	70	.....	50
34.1	.85	Corn Oil, qt. tin........................	.....	65	66	60	.....	57½	.....	.....	.....	.....	.....	.....	75
25.8	.94	Peanut Butter, lb.	22½	20	19	30	22	21	20	25	40	30	21	29	30
5.7	1.84	Milk, qt.	10	12	13	12	.....	12	12	15	15	12	14	12	13
35.0	1.68	Cheese, American, Cheddar, lb..........	30	32	34	35	.....	40	40	35	35	35	35	35	32
38.2	6.37	Eggs, fresh gathered, firsts, doz........	65	57	80	65	52	65	70	50	50	50	60	58	58
		VEGETABLES													
2.8	.93	White Potatoes, bu...............	195	200	185	210	160	175	225	160	240	225	160	165	175
4.4	.98	Sweet Potatoes, bu.	275	280	196	300	320	280	350	160	125	125	.....	.....	175
4.9	2.45	Onions, lb.	5	5	4	4	5	4½	8	10	6	5	6	6	4
19.1	1.20	Lima Beans, dry, lb.....................	32	17	16	16	19	20	20	20	23	18	20	19	18
18.3	1.17	Navy Beans, dry, lb.....................	.....	16½	18	17	19	19	20	20	23	20	20	18	18
17.0	.91	Peanuts, lb.	10	20	24	18	.....	18	.....	10	13	8	18	18	20
3.4	2.83	Cabbage, lb.	3	5	3	2½	3	3	4	3	5	5	4	.....	2
3.7	2.18	Beets, lb.	3	5	4	3½	.....	3	8	5	.....	.....	.....	.....	3
15.8	.96	Split Peas, lb.	.....	13	15	17	17	.....	20	20	12	20	19	.....	15
3.5	1.94	Turnips, lb.	3	3	8	2	.....	.....	4	5	5	5	3	.....	3
		MEATS AND FISH													
26.8	4.12	Beef Round Steak, lb...................	32½	29	35	35	35	33	30	25	30	25	26	27½	25
32.7	6.54	Veal Cutlets, lb.	28	45	36	40	40	39	40	40	35	30	35	40	35
26.8	3.08	Leg of Mutton, lb..................... .	28	26	23½	29	.....	29	25	25	40	35	24	30	20
32.7	3.89	Leg of Lamb, lb....................... ..	35	33	31	33½	32	34	30	35	40	35	26	50	28
33.9	2.76	Pork Chops, lb.........................	33	35	31	40	35	33½	35	35	40	40	37½	41	32
45.8	2.41	Ham, Sliced, med. fat, lb...............	40	46	48½	50	45	47½	45	48	40	40	48	45	40
34.4	11.86	Chickens, Broilers, lb...................	35	35	45	42½	35	33½	35	35	35	.....	30	32	35
23.3	6.47	Salt Cod, lb............................	12	19½	16½	25	20	28	25	15	17½	.....	22	.....	22
23.2	2.32	Salt Mackerel, lb.......................	17	22½	18	25	22	29	25	20	25	.....	20	20	25
29.8	6.62	Halibut, lb.	.....	42½	20	25	.....	40	35	25	30	.....	30	40	30
27.9	4.36	Salmon, lb.	18	32½	25	30	.....	42½	40	20	35	.....	30	35	20
21.9	6.84	Whitefish, lb.	.....	15	7½	25	15	28	20	20	20	.....	22	20	25

CEMBER 1, 1917

Ind.	Lexington, Ky.	New Orleans, La.	Little Rock, Ark.	Nashville, Tenn.	Chicago, Ill.	Detroit, Mich.	Madison, Wis.	St. Paul, Minn.	Fargo, N. D.	Sioux Falls, S. D.	Lincoln, Nebr.	Topeka, Kans.	Denver, Colo.	Tucson, Ariz.	Helena, Mont.	Reno, Nev.	Seattle, Wash.	Portland, Ore.	Los Angeles, Cal.	San Francisco, Cal.
23	15	10	19	15	15	20	14	15	15	15	20	15	12½	15	20	15	20	12½	13	17½
15	13	14	14	13	15	17½	17½	15	14	14	15	15	15	15	20	15	18	15	16	20
14	15	15	12½	17	16	17½	15	15	15	14	15	15	15	17½	20	12½	14	12½	12½	20
19	15	17½	17	14	20	20	19	18	20	20	20	15	20	17½	20	15	15	13	18	.....
22	25	20	22	30	25	27½	20	30	25	21	25	20	25	27½	25	25	20	15	20	22½
35	30	20	25	23	25	27½	25	30	25	30	30	30	30	35	30	27	20	20	22	25
23	25	25	30	17	30	30	22½	28	35	32	30	28	30	25	30	30	27	25	26	30
15	8	7½	7	8	12	10	11	7	8	8	10	10	12½	15	30	12½	8	10	9	10
38	340	325	300	290	295	300	315	280	285	305	315	285	275	340	325	325	270	270	305	300
35	165	.....	150	150	135	150	173	130	145	193	160	180	.....	210	215	210	135	165	155	175
75	75	.....	75	67	70	60	80	65	60	79	75	70	70	75	100	70	60	65	62	62½
14	15	20	12½	13	13	15	14½	15	15	15	15	14	15	15	15	14	13	15	12½	15
25	25	20	25	22	25	25	25	25	25	25	25	25	25	30	30	25	24	25	22	25
2	12½	11	12	27	12	12	12	12	15	15	15	10	13½	15	15	18	12	12½	11	20
8	10	7	8	7	6	7	7	8	7	8	8	10	10	.....	8	9	7	7½	8	7
6	12½	9	10	10	12	11	11	12½	10	11½	12½	10	12½	12½	12½	11	9	12½	10	10
12½	15	11	11	10	12	12	12	12	12½	12½	15	12	13½	10	15	12	11	12½	10	15
8	6	5½	6	4	7	7	8	8	7	7	4½	7	.....	15	8½	8½	7	8	7	8
...	10	5½	6	6½	10	10	.....	12	10	9	.....	10	12½	.....	.....	8	8	8	7	9
9	10	10	15	25	10	10	9	10	8	14	15	10	10	20	15	12	10	10	12	10
10	10	7	10	10	9	.....	12	8	10	11	10	9	10	10	10	10	8	10	6	10
20	20	17½	15	15	18	17	17	20	15	17½	20	20	20	15	20	16	17	18	14	20
6	8	8	7	6	7	7	8	7½	7½	7½	8	7	8	7½	10	7	7	7½	6	12
18	15	9	10	15	15	.....	12	12½	10	.....	.....	12	10	15	15	15	10	7½	.....	10
12	10	10	8	7	10	8	10	12	10	10	10	12	12½	15	12½	14	10	10	11	10
...	15	10	15	21	.....	20	.....	15	15	.....	20	15	8	25	15	15	17	17½	18	20
18	17½	15	15	17	18	20	14	15	18	15	15	15	12½	25	15	12½	17	15	16	12½
14	15	12	15	12	15	15	16½	15	15	15	15	15	17½	20	15	15	12	10	12	12½
21	17½	13	15	23	16½	15	14	15	18	16½	18	15	15	15	20	15	13	12½	16	11
9	10	9	9	10	8½	8½	9½	10	9	9½	10	8	8	9	11	8½	8	8	8	8
30	85	.....	75	75	100	75	85	75	90	90	90	70	79	85	66	97	90	90	82	100
24	25	.....	20	30	28	25	25	25	30	22½	30	20	12½	32½	25	17	22	20	25	25
29	30	.....	35	28	25	25	27½	25	35	50	35	20	30	.....	.....	45	22	25	.....	32
6½	42½	45	47	40	49	50	42½	50	45	52½	55	55	55	60	45	55	50	55	60	67½
0	50	52	50	52	53	55	51½	49	48	49	50	44	45	55	55	50	52	50	48	55
4	35	33	34	32	30	32	35	35	35	34	35	35	35	38	46	35	27	.....	33	30
4	34	34	29	40	35	30	34	32	35	38	38	31	30	37½	.....	.....	35	38	35	37½
7	115	115	65	115	115	115	110	110	150	125	100	95	100	125	165	110	135	110	106	125
5	65	45	35	55	58	75	.....	70	75	64	80	.....	90	85	60	55	60	61	49	40
9	65	45	50	.....	70	.....	.....	.....	60	65	70	.....	90	70	75	65	64	60	60	40
5	25	40	25	25	25	25	30	22	25	25	30	25	40	25	25	25	.....	17	20	22½
0	14	14	16	12	13	.....	12	10	13	10	11	9	11	15	12½	10	10	12½	.....	12
5	35	30	34	30	35	32	33½	35	35	35	37½	34	35	50	40	33	29	30	.....	30
7	55	60	45	50	59	59	49	48	50	44	49	44	45	65	70	65	63	65	58	65
5	185	150	200	190	145	155	147½	150	135	135	185	150	.....	195	135	150	115	135	153	165
...	200	150	160	225	344	.....	312½	325	.....	230	250	175	344	275	344	275	240	275	165	229
4	6	3½	5	5	5	5	3	4	.....	5	6	3	5	4	5	3	3	5	3	5
0	20	15½	17	18	20	20	19	20	15	20	20	20	17½	15	25	20	16	15	17	20
0	19	16	17	20	20	16	20	20	17½	18	17½	18	17½	15	20	16	16	15	17	15
...	20	17½	15	14	20	.....	15	.....	20	20	20	.....	20	.....	15	20	13	15	15	20
3	3½	3	4	3	4	4	3	3	4	4½	4	3½	2½	5	4	3	2	2	1½	.....
...	.....	.....	5	5	3	.....	3	3	3	4	3	2½	3	5	3	3	2	.....	.....	4
7½	.....	17½	9	15	15	20	18	15	20	20	15	.....	12½	12½	15	16	10	12½	13	17½
5	2½	2½	3	5	3	.....	3	3	3	4	3	1	2½	5	3	3	2	2½	.....	5
9	26	20	25	25	28	26½	21	25	25	28	25	25	30	28	25	22	20	21	22	22½
5	30	30	30	35	35	42½	28½	30	22	32	30	30	35	30	30	30	25	19	28	21
5	24	25	30	30	28	22	22½	22	20	30	25	.....	25	35	30	26	30	20	.....	25
0	40	32	35	35	32	32	27½	25	25	35	30	40	35	.....	35	32	30	25	31	27½
5	30	30	30	30	35	30	32	33	28	35	30	30	35	40	32½	30	35	35	35	33½
7	45	45	45	40	45	45	40	45	40	45	50	50	50	50	45	50	45	45	51	57½
0	45	35	35	30	28	35	23½	25	20	22	25	45	35	40	35	30	35	27	48	50
7½	20	20	25	30	28	22½	27½	25	28	27	25	.....	30	.....	22½	.....	18	20	22	20
0	16	20	30	14	25	22½	21½	10	30	25	25	.....	.....	20	30	.....	22	17	.....	35
0	30	.....	30	40	28	25	27½	28	28	30	30	.....	30	25	32	27½	17	30	20	35
0	19	20	30	40	28	20	26½	25	28	29	28	.....	25	30	32	26	20	20	.....	30
0	22½	.....	.....	25	28	20	23	17	20	24	28	.....	25	.....	35	.....	.....	.....	.....	7

Book Reviews

BUTTERMAKERS' SHORT COURSE. By Mr. and Mrs. W. J. McLaughlin. Published by the authors, Owatonna, Minnesota. $2.00.

This valuable little book will doubtless be welcomed by buttermakers throughout the country, coming as it does from the pen of writers who are well known expert buttermakers of long experience, being the directors of the Buttermaking Service Department of the Minnetonna Company, Owatonna, Minnesota.

Every conceivable problem of the buttermaker is here discussed, ranging from the choice of the machinery down to such details as preparing package butter for market. Specifically the topics treated include testing for butter fat, neutralizing cream, "blowing" cream, the pasteurization of cream, the use of commercial starter, testing milk and cream for acidity, developing flavors in cream and butter, churning, washing, salting, incorporating and controlling moisture, and the overrun.

The fact that the authors openly direct buttermakers in the art of neutralizing cream for buttermaking would indicate that they perhaps are unaware of, or possibly overlooked, the fact that their own state of Minnesota specifically prohibits the use of neutralizer in butter, and that the federal law states that butter manufactured by such a process is "adulterated butter" and subject to a tax of 10 cents a pound. Commissioner Sorensen will, without doubt, be interested to learn that this process is recommended and impliedly practiced in the state of Minnesota, the authors stating that the directions in their book are based upon their experience in practical buttermaking. At the close of the chapter, however, the novitiate is advised, in case the cream can be properly pasteurized without the use of neutralizer, to get along without the latter, as it does not improve the resulting product. No hint is given, however, that its use is illegal. The neutralizer recommended is a mixture of ten pounds of lime, ten pounds of soda ash, and thirty gallons of distilled water. The authors recommend that the salt be warmed, so that more may be used, and state that as high as five per cent can be incorporated when the process is performed properly.

To incorporate moisture, lowering the temperature and working the churn rolls in second rinse water several revolutions of the drum are recommended. Then the following statement ensues: "It is absolutely necessary that butter should contain 16 per cent of moisture in order to have the salt dissolved and evenly distributed throughout the butter. It is absolutely impossible to make butter with an even color were it not for the moisture contained therein to dissolve the salt. Butter with 16 per cent moisture properly controlled will have a perfect body and texture."

Here again the McLaughlins show a lamentable ignorance of the law, firstly advocating the manipulation of butter to incorporate the moisture, secondly stating that the butter should contain 16 per cent of moisture. In either case the butter according to present laws and regulations could hardly escape being considered adulterated and subject to a tax of ten cents a pound.

Notwithstanding the fact that the authors have overlooked state and federal laws and regulations governing the manufacture of butter in the above instances, and that buttermakers will presumably be slow to act upon these directions, on the whole the book might be considered to contain much valuable information, concisely stated, which will undoubtedly be of interest to the progressive buttermaker.

National Canners Disprove Poisoning by Canned Foods.

An eastern newspaper recently published an article relative to the illness of a number of soldiers at one of the cantonments from the use of canned foods.

Through the Bureau of Publicity of the National Canners' Association the matter was taken up with the proper authorities. A reply was received stating that there had been no sickness at any time caused by food, that all of the companies have had a number of men ill as the result of vaccination and inoculation but the facts did not indicate that food had anything to do with the matter.

Later a middle west daily published an article alleging ptomaine poison from canned foods among the soldiers at another cantonment.

The Bureau of Publicity learned that there was no record of ptomaine poison, although at the time a slight epidemic of enteritis existed, probably due to change of climate and living conditions and to cooked food allowed to remain over night.

During September a western newspaper under title of "Family of Four Ill of Ptomaine Poison" published an article charging canned salmon with causing several illnesses.

Through investigation by the Bureau of Publicity it was conclusively shown that the illnesses were not caused by eating canned salmon or any other canned food. The result of the investigation was presented to the editor of the paper and a full correction published.

"W. K." Kellogg Wins Suit.

The long standing controveries between "the two Kelloggs" of Battle Creek, as to which has the right to use the family name on breakfast foods and similar products, have been ended by a complete victory for W. K. Kellogg.

Judge North of the Michigan Circuit Court for Calhoun County has finally handed down a signed decree, giving all the rights to the defendant, and not only giving the defendant the relief asked by Dr. Kellogg against the defendant, but damages as well for all profits accrued by Dr. Kellogg since 1908. The judgment is based on the fact that the plaintiff was permitted, by the defendant, on February 15, 1911, to use in the United States the name "Kellogg Food Company" on flaked cereal foods, so long as this name was of a stipulated size, was at the bottom of the carton, and the word "Kellogg" was printed in the same size, style, and color as the rest of the words, and to use the facsimile of John Harvey Kellogg under certain restrictions, and that the plaintiff used the word "Kellogg's" in other titles and names and as applying to other food products than were specified.

New York State's Food Administrator.

Mr. C. E. Treman, former commissioner of public works in New York state, and a trustee of Cornell University, has been appointed food administrator of New York state outside of New York City.

Foreign Food Control News

Canada Increases Food Control Scope.

Additional powers given to the Food Controller authorize him to prohibit manufacturers, wholesale dealers, commission merchants, brokers, retailers or partnerships, syndicates or associations from dealing, wholesale or retail, in any or all food commodities except under license from his office. An Order in Council has been passed to this effect. Licenses will not be required, however, without further notice, for exportation of livestock to the United States.

The Food Controller is also authorized to make regulations governing the conditions of sale of food products, and has the power "to prescribe the maximum amount of profit or the maximum price (or both) to be charged on the sale in Canada, or within any part or parts of Canada designated by the Food Controller, of any food or foods or of any food product or food products designated by the Food Controller."

The Order in Council provides that a fee may be charged for licenses to do business, but that in no case such fee shall exceed $600. Licenses will be subject to cancellation or suspension for violation of any of the Food Controller's regulations.

Other powers vested in the Food Controller under the order in council are:

(1) Subject to the provisions of any law now in force, to prescribe the units of weights or measures to be used in the selling of food commodities.

(2) To prescribe the manner in which food products may be designated, marked, branded or graded.

(3) To prescribe the maximum amount of any food or food products that may from time to time be bought or sold by any person or persons.

While the powers thus given to the Food Controller are wide, he has stated that before a license system was applied to any particular trade representatives of that trade would be consulted as to the conditions of licensing and the license fee, in order that no injustice would be done.

The exportation of food products, feeding stuffs, fertilizers and certain other articles of necessity to countries other than the United Kingdom, British possessions and protectorates is placed under strict control by a Canadian Order in Council of November 15. The prohibition upon shipments of such goods is to be modified by licenses issued by the Minister of Customs, under regulations framed by the Food Controller of Canada, in favor of countries in alliance with the British Empire and having armies in the European field. The articles named in the list are as follows:

Animal fats; butter; castor oil; castor beans; cocoanut, desiccated; cheese; cod liver oil; condensed milk; copra; corn (maize); corn flour; corn meal; corn oil; cottonseed meal; cottonseed oil; crisco; dry blood; dry paste flour; fats, all; fertilizers, including cattle and sheep manure, nitrate of soda, poudrette, potato manure, pottassium salts, land plaster, potash, cyanide, phosphoric acid, phosphate rock, superphosphate, chlorate of potash, bone meal, bone flour, ground bone, dried blood, ammonia and ammonia salts, acid phosphates, guano, humus, hardwood ashes, soot, anhydrous ammonia; glycerin; glucose; grease of animal or vegetable origin; hoof oil; hulls fodder; lard; lard compound; linseed oil; linseed; livestock; malt; meats, all; meat juice; meats and fats, including poultry, cottonseed oil, corn oil, copra, desiccated cocoanut, butter, fish (fresh, fried and canned), edible or inedible grease of animal or vegetable origin, linseed oil, lard, tinned milk, peanut oil, peanut butter, rapeseed oil, tallow, tallow candles, stearic acid, pigtails; fish; flax; flour; food grains, flour and meat therefrom; fodder and feeds; pigeons, carrier and others; pilchards (sardines), canned; poultry; rapeseed oil; rice; rice flour; rolled oats; rye; sago flour; samp, Indian corn; sirup; milk, tinned and powdered, not fresh; molasses; neat's-foot oil; Nestle's food (infants); oats; oatmeal; oil cake; oil-meal cake; peanuts; peanut butter; peanut oil; soap, soap powder; stearine; stearine acid; stearine acid candles; sugar; sugar of milk; sulphurated castor oil; tallow; tallow candles; vegetable oils; wheat, wheat flour.

The instructions to the customs service for the administration of the above prohibition, issued on November 17 as Customs Memorandum No. 2139B, make special provisions for trade with the United States. Endorsement by the collector of customs at the port of exit will serve as a license for the exportation to the United States of the following quantities of goods specified: less than 125 bushels of food grains; less than 25 barrels of flour; less than 125 pounds of butter, milk and cream in usual quantities; fresh fish in usual quantities. Certain shipments containing a number of different articles, each of small value, may be forwarded to the United States after endorsement by a collector of customs. Such shipments are not to contain an amount of one commodity exceeding $100 in value. Wheat from certain provinces may be delivered to elevators in the United States when conveyed in farmers' vehicles.

All goods laden on cars and in transit on November 19 are exempted from the provisions of the Order in Council.

No grain of any kind, and no substance that can be used for food, shall be used in Canada after November 30 for the distillation of potable liquors. An Order in Council to this effect has been passed, upon the recommendation of the Food Controller. It will remain in force "until the Governor General-in-Council has, by order, declared that the present abnormal conditions have ceased." The penalty for violation of the regulation is a fine of up to $5,000, or imprisonment for a term not exceeding six months, or both fine and imprisonment.

Under an Order in Council of August 9 the use of wheat for distillation or manufacture of alcohol was prohibited, except that the Food Controller may license the use of wheat in the distillation of alcohol for manufacturing or munitions purposes. The new order will save for food purposes considerable quantities of barley, corn and rye, although for months the distilleries have been using these grains principally in the manufacture of industrial alcohol and not for beverages.

Control of all packing houses in the Dominion is being carried out under the following regulations:

(1) No packer shall be entitled to a profit of more than 2 per cent of his total annual turnover; that is, his total sales during any one year.

(2) If the 2 per cent on annual turnover exceeds 7 per cent of the actual capital invested in the business the profits shall be further restricted as follows:

(a) Up to 7 per cent on capital the packer may retain the profits.

(b) If the profits exceed 7 per cent and do not exceed 15 per cent one-half of the profits in excess of 7 per cent shall belong to the packer and one-half to the Government.

(c) All profits in excess of 15 per cent shall belong to the Government.

Suitable regulations shall be made to insure the carrying out of this policy.

New Italian Food Regulations.

The Consul General at Genoa reports that the *Gazzetta Ufficiale* recently contained a memorandum of the Commissary General for supply and consumption of food which establishes regulations for the working of wheat for bread and food pastes. The mills that work for the Commissariat General, for the grain associations, and for the other authorized bodies can not work for account of others, either wheat or other cereals. The mills, during the time they work for account of the Commissariat, of the associations, and of the other bodies, can not keep in their storehouses or on their premises any other kinds of wheat except those intrusted to them and the products derived from them.

Every mill is directed to grind daily a quantity of wheat not exceeding the maximum allowed by the power of the machinery, and the milling must be carried on regularly on the basis of the hourly production of the mill itself. The washing and wetting of the wheat for the production of flour for bread is prohibited, and therefore all the machinery and apparatus destined for this purpose must be put out of use and sealed up. The cleaning of the wheat is obligatory, limited, however, to 2 per cent, which represents the loss through milling. For every quintal (100 kilos, or 220.46 pounds) of uncleaned wheat consigned to the mills for flour these must give back 85 kilos of flour and 13 kilos of bran, plus the proceeds of the cleaning to the amount of 1 per cent.

Mills whose plants are for working soft wheat are forbidden to produce materials for food pastes. In mills having plants for both hard and soft wheat the contemporaneous production of flour for bread and products for food pastes is prohibited. Mills that have, and in direct communication, a factory for food paste can not produce flour for bread.

On August 30, the *Gazzetta Ufficiale* contained a regulation of the Commissary General establishing the maximum prices to be observed for the requisitioning of the crop of the whole rice of 1917. The maximum prices per quintal of 220.46 pounds net that must be observed are: whole rice, common, 40 lire ($7.72 at par of exchange); whole rice, semifine, 42 lire ($8.11); whole rice, fine, 44 lire ($8.49). These prices are at the storehouse of the holder, sacked by him, in sacks and with cord furnished by the requisition committee.

The maximum prices are applicable to lots which for maturity, purity, and immunity from disease and parasites are judged commercially to rank among the best of the production of 1917. For lots which do not possess these requisites the price will be proportionately reduced.

For consignments from the first of November to the end of February 25 centesimi (4.8 cents) more will be paid for each quintal of rice, and for each month or fraction of a month in the period of time following February this increase will be 40 centesimi for each quintal of rice.

On the same date as the regulation applying to rice, the *Gazzetta Ufficiale* published a regulation establishing the maximum price for the barley, rye, oats, and maize of the crop of 1917. These prices per quintal net of grain, at the storehouse of the holder, sacked by him, in sacks and with cord furnished by the requisition committee, are: barley, 43 lire; rye, 43 lire; oats, 36 lire; maize, 36 lire. For the grain already requisitioned or consigned will be due the gain derived from the increase of price resulting from the application of this regulation.

The maximum price for maize is to be applied to those lots which correspond to the best commercial requirements as to variety, nutriment, specific weight, maturity, and good condition; for barley, rye, and oats are applied the rules of a ministerial notification of June 4, 1917.

For the consignments of maize after October 31, 1917, will be paid 25 centesimi more for each quintal of maize, for each month or fraction of a month; for consignments of oats, barley, and rye, the increase established by the ministerial notification which has been mentioned.

Food Control In Spain.

Consul General Hurst, at Barcelona, reports:

The difficulties in obtaining sufficient supplies of food products for Spain having steadily increased, the Spanish Government has adopted a new measure to deal with the situation.

In November, 1916, a provisions board was created, which made a thorough study of the demands of the country. This organization was dissolved in April, 1917, and it has now been decided to intrust the work to one person, who will have general charge of securing and distributing alimentary products. By a royal decree, published October 4, a commissary general of provisions was appointed with power to buy foreign wheat, regulate its price and distribution, and restrict consumption.

According to a cablegram from the Consul General, a Spanish royal order of October 23 prohibits the exportation of preserved meats of all kinds.

British Measures.

Under the Milk Factories (Restriction) Order issued by the British Food Controller, no creamery, condensery or other milk factory of any kind may acquire after November 15 a greater output of milk than was coming in on December 31, 1916, or August 31, 1917, whichever was the greater. A return of the quantities coming in on those dates and on October 24 of this year had to be made to the Food Controller not later than November 8.

The Consul General at London recently cabled as follows:

Foreign Trade Department reports that certificates of interest for imports into United Kingdom from Philippine Islands and Porto Rico no longer required.

The British Government required that imports be accompanied by certificates stating that no person named on the British black list had any interest in the goods. Shipments from the Philippines and Porto Rico were subject to this regulation, but those from the United States were exempted. The requirement has been in force since October, 1916.

Mexican Sugar and Molasses Embargo.

An unconditional prohibition on the exportation of refined and muscovado sugar, molasses, and brown sugar, specified in item 150 of the Mexican export tariff, until further notice is contained in a decree signed by the President of Mexico on October 10, 1917.

New Sales Manager for National Biscuit Co.

C. F. Shriver has been appointed local sales manager of the National Biscuit Company to succeed the late W. A. Meehan. Mr. Shriver comes from Cleveland, where he has been sales manager since last August. Prior to that he was factory and sales manager at Cincinnati. The company also announces the appointment of A. G. Packard as Chicago office manager. He comes from Grand Rapids, where he was sales and factory manager.

Coca-Cola Cases.

The long fought case of the "United States vs. Twenty Barrels and Forty Kegs of Coca-Cola" came to an end in Chattanooga on November 12, when a modification of the formula by the Coca-Cola Company resulted in the dismissal of the Government action.

The barrels and kegs which give title to the action were seized under the Pure Food Law several years ago, as misbranded and mislabeled. In the U. S. District Court at Chattanooga, the company won its case and the Government appealed. The Supreme Court sent the case back for presentation to a jury to determine whether caffeine contained in the coca-cola is injurious to the health.

Justice Hughes, for the Supreme Court, held that the Tennessee courts erred in deciding that a proprietary food composed of ingredients brought together within the meaning of the Pure Food Law, could not be held to contain the "added poisonous or injurious ingredients" forbidden under the law.

When the case came up on November 12 for retrial, counsel for the defendant company said the process of manufacture had been modified and that any verdict returned in the case at issue would be inconclusive against its present product.

When the ancient fight between the Coca-Cola Company and the Gay-Ola Company over the trademark or identification of the latter drink was revived in Federal Court at Memphis, the Coca-Cola Company sought to cite the defendant for contempt of court in an alleged violation of Judge McCall's decree of April 24, 1917.

In 1914 the Coca-Cola Company secured a decree in which the Gay-Olo Company was ordered to sell its products in a bottle distinctive from that used by the plaintiff in the action, and to see that the products reached the ultimate consumer in said distinctive bottles, etc. Shortly afterward the Gay-Ola Company went into bankruptcy, and on October 26, 1915, the Gay-Ola Syrup Company was organized.

Now the Coca-Cola Company alleges that the syrup company, having bought or acquired some of the holding of the Gay-Ola Company, is its assign or successor, and should be bound to obey the decree entered against the Gay-Ola Company.

Judge McCall issued a summons to the syrup company to appear December 10, 1917, to answer the petition and to show that it is not in contempt of court.

Opinion of the Attorney General on Importation of Distilled Spirits.

It will be remembered that, as stated in the last issue of this JOURNAL, the opinion of the Attorney General of the United States was requested by the Treasury Department on the question of the importation of distilled spirits.

The Attorney General in reply delivered as his opinion that the Revenue Act of October 3 did not repeal in any sense the Food Control Act of August 10, forbidding the importation into the United States of "any distilled spirits." He replied specifically to the questions submitted as follows:

1. Distilled spirits produced before the passage of the War Revenue Act may not be imported for beverage purposes.
2. Distilled spirits produced before the passage of the War Revenue Act may not be imported for any purpose.
3. Distilled spirits produced after the passage of the War Revenue Act may be imported for other than beverage purposes under such rules, regulations, and bonds as the Secretary of the Treasury may prescribe.
4. Distilled spirits produced in the West Indian Islands recently acquired from Denmark, if produced from products the growth of the islands and produced after the passage of the War Revenue Act, may be imported for any purpose, but if produced before the passage of the War Revenue Act, their importation for any purpose is prohibited.

Recent Patents

The following patents of interest to readers of this JOURNAL recently were issued from the United States Patent Office. Copies thereof may be obtained from R. E. Burnham, patent and trade-mark attorney, Real Estate Trust Building, Washington, D. C., at the rate of 20c each. State number of patent and name of inventor when ordering.

1,242,884. Method of producing a shortening composition. Henry A. Kohman, Truman M. Godfrey and Lauren H. Ashe, Pittsburgh, Pa., assignors to Ward Baking Co., N. Y.

1,243,244. Method of making so-called alkalized cocoa. Walter C. Bladen, Jersey City, N. J.

1,243,275. Apparatus for the production of skimmed-milk and vegetable-fat compounds. John F. Enz, Denmark, Wis.

1,243,318. Machine for molding and baking pastry cups and method of extracting the product from the molds. Alexander McLaren, Chicago, Ill.

1,243,440. Non-intoxicating beverage and process of making the same. Carl A. Nowak, St. Louis, Mo.

1,243,724. Process of removing the skins from fruits and vegetables. William B. Fenn, New York, N. Y.

1,243,811. Method and apparatus for producing dealcoholized fermented beverages. Gino Ciapetti, Rome, Italy.

1,243,855. Substitute for milk made from soya-beans and arachis (pea) nuts. William J. Melhuish, Parkstone, England.

1,243,964. Food product. Jose M. C. Negrete, Habana, Cuba.

1,244,168. Fish-cleaning device. Benjamin R. Brierly and Edward H. Waugh, Seattle, Wash., assignor to Smith Cannery Machines Co., same place.

1,244,331. Citrus-fruit peel, pulp, and juice machine. John D. Howe, Upland, Cal.

1,244,429. Drying-room for cereal pastes. Nicola D'Agostino, Los Angeles, Cal.

1,244,452. Fruit and vegetable peeling machine. John H. Hamlin, New York, N. Y., assignor to Bramhall Deane Co., same place.

1,244,586. Breakfast food. Grace Cockrell, Niagara Falls, N. Y.

1,244,757. Fruit-pitting machine. William F. Morse, Rochester, N. Y., assignor to Huntley Mfg. Co., Silver Creek, N. Y.

1,244,774. Apparatus for the treatment of corn, grain, fruit, and the like. James C. A. Pointe, Dijon, France.

1,244,801. Machine for rounding up lumps of dough. Frank H. Van Houten, Beacon, N. Y., assignor to Dutchess Tool Co., same place.

1,244,867. Self-rising flour and process of making the same. Paul Laidley, St. Louis, Mo.

1,245,031. Raisin-drying process. George C. Roeding, Fresno, Cal.

1,245,255. Breakfast food. Henry C. May, Bowman, N. Dak.

1,245,380. Apparatus for preparing fruit for shipments. Thomas J. Peters, Peters, Fla.

1,245,294. Egg-preserving composition. John W. Williams, Fresno, Cal.

1,245,489. Process of canning. Kiichi Miyauchi, Kagoshima-Ken, Japan.

1,245,597. Candy-sealing machine. Edwin P. Kline, New York, N. Y.

1,245,652. Machine for linking sausages and the like. Conrad Wolke, St. Louis, Mo.

1,245,662. Fruit-grading or sizing machine. John D. Black, Redlands, Cal.

Staff Correspondence

Washington, D. C.

Food Administrator Herbert Hoover, in line with President Wilson's proclamation of November 7, placing the baking industry under the direct jurisdiction of the Food Administration, effective December 10, has appointed a committee of the cracker industry to draft the regulations governing the control of the industry and to serve in an advisory capacity to the Administration. It consists of R. E. Tomlinson, president of the National Biscuit Company, New York, Brooks Morgan, president of the Independent Cracker Bakers' Association, Atlanta, Georgia; and John H. Wiles, treasurer of the Loose-Wiles Biscuit Company, Kansas City, Missouri.

The committee has already held several meetings in Washington and formulated baking regulations concerning the conservation of wheat flour, sugar and shortening. When these vitally necessary first steps of conservation shall have been completed the committee will direct its attention to further constructive work in the production and shipping of the greatest possible quantity of cracker products, which by reason of their nutritive value in concentrated form and their unusual keeping qualities give them a high place in war time and the industry a conspicuous position in war work.

An annual saving of 16,000,000 pounds of sugar and 12,000,000 pounds of shortening is estimated by the cracker manufacturers. The cracker bakers have been using 126,000,000 pounds of sugar and 98,000,000 pounds of shortening yearly.

Following are the regulations for all cracker manufacturers:

The licensee in manufacturing crackers shall not use the following ingredients in amounts exceeding those specified below per unit of 196 pounds of any flour or meal or any mixture thereof:

Shortening—Not to exceed 17 pounds average in sponge goods, of which not more than 10 pounds shall be animal fats. Not to exceed 26 pounds average of shortening in sweet goods, of which not more than 13 pounds shall be animal fats.

Sugar—No sugar shall be used in the manufacture of sponge goods. Not to exceed 55 pounds average in sweet goods.

In the manufacture of crackers those made with yeast shall be considered sponge goods. All other goods shall be considered sweet goods.

The Food Administration, in view of the national necessity for conserving shortening and sugar, requests manufacturers of crackers to reduce the sugar and shortening contents below the maximum permitted by the above rule. A reduction of the shortening and sugar allowance may be found necessary at a later day.

NEW RULINGS.

All speculation in butter and eggs has been eliminated, permitting these products to go in as direct a line as possible from the producer to consumer, by an agreement between representatives of the butter and egg exchanges of the Food Administration.

Following a conference in which every phase of the question was discussed with a view to eliminating all speculative and fictitious profits in the handling of these products, a set of rules governing transactions on the exchanges has now been adopted. The agreement is for the duration of the war. The active cooperation of all exchanges from coast to coast is now insured. Trading in futures and fictitiously set prices have been carefully guarded against.

Rule 1 provides that any goods bought on the "call" can not be offered for resale during the same session.

Rule 2 provides that goods sold on the "call" must be of the grade offered, and actual deliveries must be made.

Rule 3 provides that a request for any grade or quantity may be made during the "call," provided no price is specified by the party making the request; but bids at a price for grades and quantity not offered are prohibited. The intent of this rule is to prevent anybody bidding for grades of goods not offered, or that are scarce, with the intent or effect of boosting prices, as heretofore made possible because the scarcity of the goods allowed excessive bids to be made to establish fictitious prices.

Rule 4 provides that no purchases shall be made on the "call" except by persons actually engaged in the distribution of the commodity purchased, and the same must be purchased for actual distribution in the ordinary course of his business and only in such amounts as are necessary to enable the purchaser to efficiently and economically carry on his business and furnish an even and regular supply to his trade. It also provides that all purchases made on the call must conform to the rules and regulations of the Food Administration governing, handling, or dealing in any food commodities and licenses, in so far as they may be applicable to the particular transaction.

ALCOHOLIC BEVERAGES.

The President has approved the recommendation of the Food Administration that the alcoholic content of beer should be reduced in the first instance to 3 per cent maximum and that the volume of grain to be used in brewing shall be reduced to an amount approximately 70 per cent of the amount of grain formerly used, enabling the brewing of the same volume of beer. Further provisions are being made to increase the maximum output of cattle feed from brewing establishments.

The food law provides for the prohibition of the use of foodstuffs in the production of distilled spirits for beverage purposes and the use of foodstuffs for the production of distilled drinks was stopped on September 8. There is, however, in the country from two to three years' supply of whisky, brandy, and gin and other distilled liquors. The law provides that these liquors can be commandeered by the Government if required for purposes of manufacture of alcohol for munitions.

Those who wish brewing entirely suppressed should therefore bear in mind that if such a course were pursued the country would be placed on a whisky basis entirely and the amount of alcohol consumed would most probably increase. The desirability of saving all the grain used in brewing from the point of view of food conservation, is therefore limited by the social question involved in the exclusive use of whisky.

COMBINATION SALES FORBIDDEN.

The following statement has been issued by the U. S. Food Administration to its state representaives:

Staff Correspondence

"Washington, D. C., Nov. 17, 1917.

"On and after this date all combination sales of food commodities are forbidden with exception stated below. Sale of one or more food commodities upon condition that purchaser shall buy one or more other food commodities from seller is regarded as a combination sale within meaning of this ruling. Combination sales frequently result in the sale of more foodstuffs than the purchaser would ordinarily buy and are therefore determined to be a wasteful practice within the meaning of Section 4 of the Food Administration Act of August 10, 1917. Exception pending further notice and as wheat conservation measure: dealer may sell sugar in combination with cornmeal at the rate of one pound sugar with two of cornmeal; no other combination will be permitted nor will any other ratio than here stated be allowed. The dealer shall not sell either sugar or cornmeal at a price yielding him a profit greater than he has normally enjoyed upon the particular commodity. The dealer is not required to make combination sales of sugar and cornmeal, but may do so at his discretion. Active steps should be taken at once to enforce this decision."

RAILROAD NEWS.

At the request of the Food Administration the Priorities Committee has issued a sweeping extension of its order of November 22 for the relief of cattlemen in the drought-stricken areas of Texas and New Mexico. The new order, which went into effect on November 30, gives priority in car supply and transportation to all points in these states for forage supplies, but specifically excepts from the order live stock and perishables, human foodstuffs, railroad supplies and material, coal, and shipments for the Government.

The basis of the order, Judge R. S. Lovett, chairman of the Priority Committee, says, is that he finds "that on account of continued severe and prolonged drought in the states of Texas and New Mexico, many cattle in states necessary to the national defense and security will continue to suffer or perhaps perish unless additional measures are taken to conserve the feed supply in states and to expedite the transportation of cottonseed cake, cottonseed meal, hay, rice straw, hulls, and forage."

Considerable speculation has arisen concerning the effect of the recent measures that have been adopted in Texas with a view to directing as large a proportion as possible of the present supply of cottonseed cake and cottonseed meal to the drought-stricken areas of Texas and New Mexico. Cattlemen in other states have expressed the fear that these measures might interfere with their wintering their cattle. The Food Administration wishes it understood that the effort to relieve the extreme situation in the two states named, where cattle were dying for lack of feed, is a purely temporary affair and will be relaxed just as soon as the emergency is passed.

The Interstate Commerce Commission has been holding rehearings on the icing charges' case, but progress has been very slow, due to the hard fight put up by both the railroads and the shippers. The packers, country creameries, and country poultry and egg shippers are fighting together, for probably the first time in history, and the weight of evidence seems to have been on their side so far. No really new evidence has been added to the record of the 1914 original hearing, so it seems unlikely that the Commission will reverse its original decision holding it wrong for the railroads to charge for icing of cars.

The Commission on Car Service has declared a zonal embargo, effective from December 8, against the loading, reconsignment, or movement of carload corn and oats into territory south of the Canadian boundary, east of the line separating Wisconsin and Michigan, Indiana and Illinois, and north of the Ohio and Potomac Rivers from points outside. No exceptions to this embargo will be made except as authorized by the Commission on Car Service.

For some time the congestion on eastern lines of railroads has been absorbing and holding the cars properly belonging to the western section of the country. It is expected that this embargo order, in addition to the diversion of a large volume of traffic by shipments of grain and other supplies for the Allies to the Gulf and South Atlantic ports, will allow the cars belonging to western lines to be returned to that section for use, and at the same time allow more prompt handling of freight in the eastern section of the country.

THE PACKERS CONFER.

Messrs. Armour, Wilson, Swift, Morris, and representing also Messrs. Cudahy, the five great Chicago packing firms, had a conference on December 1 with Mr. Hoover. The packers made a strong protest against the Food Administration's regulation fixing the earnings of packers upon a basis of 9 per cent maximum profit—this figure having been arrived at after investigation of pre-war earnings and the consideration of the entire situation by the Food Administration.

The view of the packers was that the Administration basis might limit their borrowing capacity and did not yield them sufficient to pay for the necessary expansion of plant and equipment and that no new capital could be found for this purpose during the war. They stated that unless the plants were annually expanded they could not hope to maintain their efficiency and meet the annual increase in the country's and the world's demands.

The packers stated they would cheerfully work under any regulations made by the Government, but they represented strongly that the entire responsibility for any future shortage in production by the packers must fall upon the Food Administration by virtue of this ruling.

Mr. Hoover stated that their investigations showed that pre-war earnings were slightly less than 9 per cent, and that any request for an increase was practically asking the producers and consumers of the country to pay for plant expansion and raising a serious question of public policy and the rights of the public in extensions created in this manner. He expressed the belief that in this industry, where the export was larger than the country's supply as a result of the war, there could be no lack of confidence on the part of the banking community in the packers' earning capacity, and he took the view that if the packers exhausted their abilities to find capital and exhausted their abilities for construction out of their earnings and that if the Government required specific extensions of plant to meet war needs, these would be considered upon their merits from time to time.

The packers were in full accord with the principle that no industry should seek to earn larger profits out of war needs, and Mr. Ogden Armour remarked that his firm was prepared to employ practically all profits obtained in increasing production.

CO-OPERATION IN FOOD CONTROL.

A committee of representative retail grocers from various sections of the country has been formed to co-operate with the United States Food Administration in carrying out its program. Mr. John H. Schaefer, president of the National Retail Grocers' Association, has been appointed as chairman, and he is now spending a portion of his time with the Food Administration in Washington.

Mr. Schaefer plans to visit retail grocer associations in all parts of the United States during the coming months. The personnel of the remaining members of the committee will be announced shortly.

Secretary of Agriculture Houston, addressing the Thirty-first Annual Convention of the Association of American Agricultural Colleges and Experiment Stations in Washington on November 14, speaking of the co-operation between the Food Administration and the Department of Agriculture, said in part:

"The problem is a common one, and it is of the first importance that the work be done in the closest cooperation and with an eye single for the public good. There is no need for undue duplication of effort and no causes of friction which can not be removed through an intelligent conception by each agency of the powers and purposes of all and by a spirit of mutual accommodation. In a broad way it is agreed that the prime function of the Department of Agriculture shall be the stimulation of production, the conservation of products on the farm through all the normal and approved processes, the promotion of better marketing and distribution of products from the farms to the markets, the prosecution of the work in home economics along usual lines, the dissemination of information, and the extension of all these activities as authorized by law. In a similar way the principal function of the Food Administration is the control and regulation of commercial distribution of foods, that is, of products which have reached the markets, are in the channels of distribution or in the hands of consumers, their conservation by consumers, the elimination of waste, and the handling of foods and feeds in the market by legal means through its regular officials as well as through its volunteer agencies.

"In the main the Department of Agriculture deals with all the processes of farming up to the time products reach the market until they are in the requisite form for consumption and are available for the purpose. At this point the Food Administration enters and exercises its wide powers of regulation, direction, and suggestion. Where the Food Administration through its powers can be of assistance to the Department of Agriculture in its field, it is at liberty freely to make suggestion, and, when necessary, to co-operate in executions; and the same relation obtains as to the Department's participation in Food Administration matters in which it has a vital interest and toward the promotion of which it can be of assistance. This is the substance of the agreement originally entered into between the Food Administration and the Department of Agriculture, and will be more satisfactorily observed as the agents and divisions of the two departments familiarize themselves more fully with their tasks and with the prescribed lines of effort."

HOARDING VS. PROPER HOLDING EXPLAINED.

With regard to the widely quoted reports of the Secret Service of food stored in New York and other points, Mr. Hoover has announced that the Secret Service was co-operating with the Food Administration at its request and had entered upon an examination of the food supplies in seaboard warehouses; that reports have been received from them from time to time; and that investigation has been made as to the conditions surrounding the storage of these products.

The various foodstuffs in seaboard warehouses fall into three categories:

First. Those which have accumulated as a result of the embargo act. In these cases the foodstuffs consigned to seaboard have been held up by the War Trade Board at the recommendation of the Food Administration and are still awaiting decision as to disposal. Where the War Trade Board has given a definite decision that the goods will not be allowed to be exported the Food Administration has in all cases represented to the consignors the importance of resale into domestic trade. In certain cases goods of this character have already been requisitioned and they are being sold in domestic trade or shipped to France.

A number of complicated problems arise in connection with the disposition of these goods because of the export character of packing and manufacture, many of the goods held up having been manufactured for special destinations and not being adaptable to domestic trade. Therefore the Food Administration is endeavoring to secure their absorption by the Allies.

Second. Another class of seaboard goods are the property of neutral governments, where decisions as to their ultimate destination have not yet been made by the authorities in Washington. In a number of these cases the owners have consented to their resale into domestic trade, and in fact these sales are proceeding at a number of points at the present time.

Third. The third class of goods includes goods stored in the large cities vitally necessary to maintain the daily necessities of the consuming public. Certain foodstuffs must be stored seasonally to carry them over from the period of scant to no production. Some of these goods may be held for speculative purposes and the Food Administration is determining the absolute facts in regard to the ownership and purpose of holding the different commodities in storage. It is therefore vitally necessary in all of these complexities of goods held under the embargo, of goods held by neutral governments, of goods held for seasonal storage, for those held for normal distributing purposes, to proceed with great care and at the same time with vigor against speculative and improper holding.

In connection with the holding of food products, the problem of the Food Administration is to determine what goods are held, the exact ownership in all its ramifications both domestic and diplomatic. It is also necessary to determine between speculative hoarding as distinguished from proper trade requirements. The last is of special importance to the great cities of the country because hasty action easily drives the legitimate merchants of the city to withhold shipment of

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supplies that are vitally necessary for the sustenance of the consumer through fear of unjust prosecution.

CLEAN AND SAFE MILK REPORT.

At the meeting of the International Association of Dairy and Milk Inspectors, held in Washington, October 15-17, the Committee on Rules and Regulations Necessary for Securing a Clean and Safe Milk Supply made a report, the gist of which follows.

Rules for Production.

1. Every dairy producing market milk should be licensed by the city or state so that a complete record may be kept.

2. Cattle should be healthy as determined by the tuberculin test and a physical examination by a competent veterinarian. They should be tested at least once a year and where reactors are found they should be removed and a retest conducted within six months. If the milk is to be properly pasteurized, the physical examination may suffice, but the committee wishes to affirm its belief in the economic and sanitary importance of the tuberculin test. Milk should be unsalable from cows within 15 days before calving and as long thereafter as the milk is abnormal.

3. All persons engaged in the production of milk should be free from communicable disease and from contact with any such disease. Medical examination of employes is advised where feasible.

4. Every operator of a dairy farm should, within 24 hours, notify the health department having jurisdiction over his milk, of the presence of any communicable disease on his farm or among the milk handlers.

5. The water supply on premises where milk is produced should be abundant and protected from contamination. It should be free from any disease-producing organisms.

6. Privies on dairy farms should be fly-proof, and provided with a water-tight receptacle for the excreta. The excreta should be removed frequently and buried at least two feet deep, where it cannot contaminate the water supply.

7. Cows should be clean. They should be free from accumulations of dirt and their udders and flanks should be wiped with a clean, damp cloth just previous to milking.

8. Milking should be done with clean, dry hands or with a properly sterilized mechanical milker. Milkers should milk in clean clothing.

9. Some type of small-top milking pail should be used.

10. Milk should be removed as soon as drawn, to a clean place, strained through a new cotton or other clean, efficient strainer, and be cooled within one hour to 50° F. or less. It should be kept covered and be held below 50° F. at all times.

11. All utensils which come in contact with milk should be thoroughly washed and sterilized for at least five minutes with steam or boiling water. They should be kept inverted and protected from contamination until used.

Rules for Transportation.

1. During transportation from farm to city, milk should be kept free from contamination and should be held at or below 50° F.

Packaged Cereals in Canada

A recent Canadian Order in Council decrees that during the war cereals must be sold from bulk. The minimum weight permitted packaged cereals is 20 lbs. This action means that in the opinion of the Canadian Food Officials—

First: There is no necessity for packaging cereals.

Second: Unnecessary packaging is a source of real economic loss.

What is true in Canada is equally true here. Certain cereals — and many other foods—may be advantageously sold from bulk if dispensed from

SHERER
CLEAN FOOD
COUNTERS

They are recognized by food inspectors, from Maine to California, as sanitary; more than 50,000 retail grocers testify to their usefulness and economy.

Write us for Booklet N.

Sherer-Gillett Co.
1707 South Clark Street, Chicago

The big Wilson "W" holds a great opportunity for every grocer, butcher or dealer handling food products. Backed by extensive national advertising, and by a $45,000,000 guarantee of quality, Wilson Products are big sellers, and will repeat with your customers. Their home-influence is a great aid in creating additional sales. We suggest that you investigate the big red "W" and what stands behind it.

"This mark WILSON & CO. your guarantee"

Chicago, New York, Oklahoma City, Kansas City, Los Angeles
The U. S. Government certifies to the purity and wholesomeness of Wilson & Co.'s meat food products. Look for the Government Inspection Mark

Whiter—Sweeter—Lighter Bread and Cake

The first essential of success in home baking is to employ a leavener that is pure, thorough and dependable—one that raises evenly, and gives the bread and cake the right texture, and appetizing appearance—and makes them easily digested. The purity, uniform strength and perfect keeping qualities of

Rumford
THE WHOLESOME
BAKING POWDER

insures whiter, sweeter and lighter cake and bread—it raises the baking just right, and adds to the nutritive value, as it restores phosphatic elements equivalent to those which fine wheat flour loses in the process of milling.

Every Housewife, Dietitian, Domestic Science Teacher and Lecturer should have a copy of "Rumford Dainties and Household Helps." We will be pleased to send it Free upon request.

ONE POUND RUMFORD BAKING POWDER

RUMFORD CHEMICAL WORKS,
Providence, R. I.

L.71 10.17

Staff Correspondence

Rules for Handling and Delivery.

1. All persons engaged in the sale of milk should be licensed by the state or city in which they conduct their business.

2. All persons engaged in the handling or delivery of milk should be free from communicable diseases and from contact with such diseases. The operator of any milk plant should immediately advise the health department of the presence of any such diseases among his employes or in their homes.

3. The water supply of all establishments where milk is handled should be pure and free from disease-producing organisms.

4. Proper toilet facilities should be provided for all employes, together with wash bowl, soap and towel for the cleansing of hands.

5. Where pasteurization is performed, a temperature of approximately 145°, and never less than 142° F. should be maintained for at least 30 minutes.

6. All machinery, cans, bottles, etc., with which milk comes in contact should be thoroughly washed and sterilized with steam or boiling water; and they should be protected from contamination until used.

7. At all times, except during pasteurization, milk should be held at or below 50° F. until delivered to the consumer.

8. Milk should be delivered to the consumer only in bottles or sealed cans.

Joseph P. Cotton, chief of the U. S. Food Administration meat division, has issued the following statement relative to the prices of hogs:

The main purposes of the Food Administration as to hogs are four: to see that the producer at all times can count on a fair price so that it will be profitable to him to see that the farmer increases the number of hogs bred, to limit the profit of the packer and the middleman, and to eliminate speculation.

All these purposes are necessary because we must have more hogs, so that the ultimate consumer shall at all times get an adequate supply at the lowest feasible price.

We shall establish rigid control of the packer. Fair prices to the farmer for his hogs, we believe, will be brought about by the full control which the Food Administration has over the buying of the Allies, our Army and Navy, the Red Cross, the Belgian Relief and the neutrals, which together constitute a considerable factor in the market.

The first step is to stop the sudden break in prices paid for hogs at the central markets. These prices must become stable so that the farmer knows where he stands, and will feel justified in increasing hogs for next winter. The prices so far as we can affect them will not go below a minimum of about $15.50 per hundred weight for the average of the packers' droves on the Chicago market until further notice.

We have had, and shall have, the advice of a board composed of practical hog growers and experts. That board advises that the best yardstick to measure the cost of production of the hog is the cost of corn. That board further advises that the ratio of corn price to hog price on the average over a series of years has been about twelve to one (or a little less). In the past, when the ratio has gone lower than twelve to one, the stock of hogs in the country has decreased. When it was higher than twelve, the hogs have increased. That board has given its judgment that to bring the stock

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of hogs back to normal under present conditions the ratio should be about thirteen. Therefore, as to the hogs farrowed next spring, we will try to stabilize the price so that the farmer can count on getting for each 100 pounds of hog ready for market thirteen times the average cost per bushel of the corn fed into the hogs.

Let there be no misunderstanding of this statement. It is not a guarantee backed by money. It is not a promise by the packers. It is a statement of the intention and policy of the Food Administration which means to do justice to the farmer.

BUREAU OF MARKETS NEWS.

The new grain and hay market reporting service now being developed by the Bureau of Markets of the U. S. Department of Agriculture begins December 1 in the east central division, which includes the states of Illinois, Indiana, Ohio, Kentucky and the southern peninsula of Michigan. Lester R. Spencer, of the Bureau of Markets, has left Washington to take charge of the office, which will be located in Chicago, in the Board of Trade Building. The east central division is one of ten districts into which the country has been divided for this service.

Biweekly reports will be issued as soon as the necessary organization can be completed. These will show estimates of stocks of wheat, corn, oats and hay in dealers' hands in each district, estimates of the amounts of each of these commodities which will be shipped from stations in each district during the two weeks following the date of the report, and of amounts which will be shipped to stations in each district during the two weeks following the report. The range of prices at which certain grades of these commodities are being offered for sale for shipment in carload lots at stations in each district on a given date will be given, as will the range of prices at which similar grades will be purchased for shipment to these stations on the same date.

The reports also will show the lowest price at which certain grades of grain and hay are being offered for sale in carload lots for prompt shipment from a number of the large markets from which states in this division customarily draw their supplies.

The Bureau of Markets of the Department of Agriculture announces that a plan of co-operation has been effected between the Grain Corporation of the Food Administration and the Department of Agriculture for securing a uniform application of the official Grain Standards of the United States for wheat used as a basis for transactions between country mills and grain dealers at non-inspection points.

This plan has developed since it has been ascertained that the actual inspection and grading of grain at non-inspection points by parties not interested in the transaction is impracticable. The Grain Corporation has requested country grain dealers to submit to its grain zone agent samples representing the grain involved in each such transaction.

Samples so submitted will be examined and graded by the agent of the Grain Corporation. The Corporation anticipates, however, that at times there may be some uncertainty as to the correctness of the grade assigned to particular samples by its officials, and desires, in such cases, the aid of the grain supervisors of the Department of Agriculture in reviewing the grade assigned.

It Saves Me a Dollar a Day

This Delicious Quaker Oats

Many an average housewife is saving a dollar a day by using Quaker Oats.

A 12-cent package of Quaker Oats contains more nutrition than twenty eggs. Or 2½ pounds of round steak. Or five pounds of fresh fish.

Each $1 spent for Quaker Oats buys as much as $4 in the average mixed diet.

As a balanced food, oats stand supreme.

As a vim-food, oats have an age-old fame.

No other grain food matches oats in flavor.

So Quaker Oats mean more enjoyment, better feeding, vast economy. Make them more than a breakfast dainty. Use them in bread, muffins, pancakes, cookies, etc. In these high-cost days learn the delights of oats.

Quaker Oats

The Doubly-Delicious Flakes

Specify Quaker Oats because of their extra flavor. They are made from queen grains only—just the rich, plump, luscious oats. We get but ten pounds from a bushel. Yet Quaker Oats cost you no extra price.

Among oat lovers the world over, Quaker Oats has won the leading place. All because of its delightful flavor. Now, when oat food is so important, let this flavor make it doubly inviting.

12c and 30c per package in United States and Canada, except in Far West and South where high freights may prohibit

(1733)

This 3" Wide Strip

of vegetable parchment paper (40 lb.) supported a 126 pound girl, without breaking. If the young lady had been clothed in a bathing suit, we undoubtedly could have played water from a hose upon the strip—because this paper gets even tougher when wet.

Not only is it a real protection against bacteria and dust, and a guardian of food flavors and quality, but it is strong, firm and suitable for wrapping foods and merchandise that will be handled without care.

In our line of vegetable parchment and waxed papers there is a grade that will save you money and save your product.

SAVE WITH PAPER

A little story about Helen will be found in the Prattler for November. Write to—

Kalamazoo Vegetable Parchment Company Kalamazoo, Michigan

E. PRITCHARD

Packer and Manufacturer of the Finest

"EDDYS"
BRAND

Canned Foods,
Jellies, Preserves,
Plum Pudding,
Sauces, Table Delicacies,

and

PRIDE OF THE FARM
Tomato Catsup

Bridgeton, N. J.
and 331 Spring St., New York

Staff Correspondence

The grain supervisors will examine such samples when submitted to them, in order to ascertain the correctness of the grade assigned by the agent of the Grain Corporation. The result of such examination will be reported to the grain zone agent.

The grain supervisor of the Department of Agriculture in no case will place an original grade upon samples submitted by dealers in transactions to the grain zone agent, but will review upon request where grades are doubtful or uncertain. Country grain dealers should direct all inquiries concerning drawing, labeling, packing and shipping of samples to the grain zone agents of the Grain Corporation, and not to the office of Federal grain supervision.

The Bureau of Markets has issued a service and regulatory announcement explaining to shippers the food products inspection rules of the Bureau of Markets authorized under section 8 of the Act of Congress approved August 10, 1917, and known as the Food Products Inspection Law.

For purposes of administration, the important central markets designated have been grouped into six divisions, with a supervising inspector responsible for each division. These divisions with their supervisors and the markets assigned to each are as follows:

Northwestern Division: Headquarters, New York City—Supervising inspector, E. L. Markell, 204 Franklin street, New York City. Baltimore, Md.; Boston, Mass.; Jersey City, N. J. (New York office); New York, N. Y., 204 Franklin street, Room 707; Philadelphia, Pa.; Pittsburgh, Pa.; Providence, R. I. (Boston office).

Southeastern Division: Headquarters, Atlanta, Ga.—Supervising inspector, ——— —————, Atlanta, Ga. Atlanta, Ga.; Birmingham, Ala.; Jacksonville, Fla.; Memphis, Tenn.; Mobile, Ala. (New Orleans office); Montgomery, Ala. (Birmingham office); New Orleans, La.

North Central Division: Headquarters, Chicago, Ill.—Supervising inspector, B. B. Pratt, 236 North Clark street, Chicago, Ill. Chicago, Ill., 236 North Clark street, Room 503; Cincinnati, O.; Indianapolis, Ind.; Minneapolis, Minn.; St. Louis, Mo.; St. Paul, Minn. (Minneapolis office).

Western Plains Division: Headquarters, Kansas City, Mo.—Supervising inspector, F. E. De Sellem, Produce Exchange Building, Kansas City, Mo. Fort Worth, Tex.; Dallas, Tex.; Galveston, Tex. (Houston office); Houston, Tex.; Kansas City, Mo., Produce Exchange Building, Room 202.

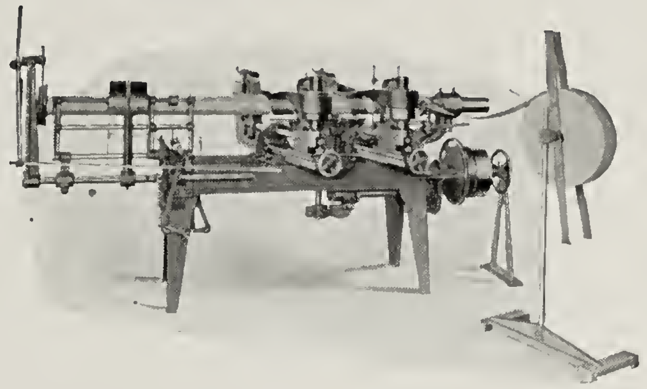
Pacific Division: Headquarters, ——— ————. Supervising inspector, ——— ————.

District of Columbia: Headquarters, Washington, D. C.—Supervision, C. T. More and W. M. Scott, Bureau of Markets, Washington, D. C., Bureau of Markets, 1358 B street S. W. (includes Potomac Yards).

The service will be extended as rapidly as possible to additional markets, which will be designated in amendments to the rules and regulations. It is expected that among the first of these additional markets will be the following: Buffalo, N. Y.; Butte, Mont.; Cleveland, Ohio; Council Bluffs, Ia.; Denver, Colo.; Des Moines, Ia.; Detroit, Mich.; Grand Forks, N. D.; Los Angeles, Cal; Milwaukee, Wis.; Newark, N. J.; Oklahoma City, Okla.; Omaha, Neb.; Portland, Ore.; San Francisco, Cal.; Seattle, Wash.; Wichita, Kan.

No markets on the Pacific Coast have been included.

ROUND PAPER CAN MACHINERY



SAMUEL M. LANGSTON COMPANY
CAMDEN, N. J., U. S. A.
CANADIAN FAIRBANKS-MORSE CO., Agents for Canada

in the original rules and regulations, in view of the fact that the immediate facilities for the work are limited and it is thought that the inspection service will be important primarily to shippers of that region in markets east of the Rocky Mountains.

EXPORT NEWS.

The War Trade Board, upon the recommendation of its bureau of imports and of the committee on the conservation of tin plate has made two additional rulings affecting the exportation of tin plate, which are set forth below in paragraphs (3) and (4), respectively, in the following list of such rulings, which is complete to date of November 12, and includes in paragraphs (1) and (2) the rulings promulgated on October 24, 1917:

(1) That no licenses will be granted for the exportation of tin plate for use for any other purpose than as food containers, except on satisfactory evidence that the plate will be used in such a way as to contribute to the military needs of the nations at war with Germany and her allies.

(2) That as to application for license to export tin plate to be used as food containers, preference will be given to those cases in which satisfactory evidence is presented that the food to be packed will be for the use of the nations at war with Germany and her allies.

(3) That no licenses will be granted for the exportation of articles (other than tin plate) containing tin, except on satisfactory evidence that the goods will be used in such a way as to contribute to the military and other vital needs of the nations at war with Germany and her allies. Preference will be given to those cases in which satisfactory evidence is presented that the goods will be used in such a way as to contribute to the production or transportation of foodstuffs for the use of the nations at war with Germany and her allies.

(4) That no licenses for the exportation of tin plate will be granted, except to the manufacturers of the plate, or to others who, either at the time of making application or before shipment out of the country, present satisfactory evidence that they have purchased the plate from a manufacturer on firm order from a purchaser abroad. This rule applies to pending as well as to future applications.

The War Trade Board has announced that the ruling under which the exportation of food-grains, flour, butter and sugar might be licensed by collectors of customs at points of exit, when the quantities shipped were less than 125 bushels of food-grains, 25 barrels of flour, 125 pounds of butter and 25 barrels of sugar, has been rescinded and withdrawn.

In order, however, to provide for the needs of those persons in contiguous countries who have become dependent upon the United States for their daily sustenance, the Board has authorized the collectors of customs, in their discretion, to license the exportation of small quantities of foodstuffs and feedstuffs, when such exportation involves merely frontier traffic on a small scale by persons living near the border, such as that arising out of customary retail purchases for their own needs.

California.

The Hauser Packing Company of Los Angeles has notified the retail meat trade and consumers that it will hereafter refuse to deliver meat and meat food products on Tuesday, meatless day, for use on that day either for sale or consumption, except to the Army

Acid Calcium Phosphate

Acid Ammonium Phosphate

Liquid Acid Phosphate

Baking Powder Materials

Phosphoric Acid

Epsom Salts U. S. P.

Oxalic Acid

Correspondence solicited

VICTOR CHEMICAL WORKS

New York CHICAGO St. Louis

Largest Manufacturers

Nucoa Nut Margarine

MADE OF NUTS AND MILK
FREE FROM ANIMAL FATS

THIS product is taxed and regulated the same as animal oleomargarine. We oppose the former and positively favor the latter. We want this product sold on its merits for just exactly what it is. We refuse to sell moonshiners. This product is sold only in one, two and five pound cartons. Our business has grown rapidly on new, progressive lines.

The Nucoa Butter Company
CHURNERS
Sales Department, 10 Bridge Street, New York

Staff Correspondence

or Navy. As a result some 700 retail butchers met and decided to close their markets on that day to help enforce this plan. This is probably the first attempt of this kind and the federal Food Administration is reported to be greatly pleased with the plan.

California has been having a great deal of trouble lately with short-weight sales. County Sealers of Weights and Measures Strobridge of Oakland and Storey of Butte County have reported much violation of the law. Mr. C. G. Johnson, state superintendent of weights and measures, has declared that potatoes sold in sacks or in lug boxes come under the meaning of the net container law and therefore such sacks or boxes must contain a declaration of their true net weight contents.

Deputy County Sealer Philpott at Sacramento condemned all the boxes of prunes placed on the market for sale during Prune Week by the California Prune and Apricot Growers' Association and the Chamber of Commerce, on the ground that the weight of the box is not stamped on the outside tissue covering. The weight, 3 pounds net, is stamped on the original container in big letters. The State Sealer replied to the complaint of the Association that Sealed Philpott exceeded his rights, and the weight was not required on the outside wrapping.

Georgia.

J. S. Sewell, inspector of weights and measures for Atlanta, has signified his intention to resign as soon as a successor can be appointed. He has accepted a commercial position.

Illinois.

Food Administrator Wheeler announced the personnel of the new milk commission on the 25th of November, and on December 2 the first hearings were held. Mr. Wheeler has emphasized the fact that everything transpiring is to be public property and that the doors are open to the public throughout. The question of pooling deliveries is being discussed among other problems. The producers are presenting their case first. Meanwhile prosecutions in the milk cases already pending will be held up until the close of the hearings.

The Chicago stock yards will be placed under the zone system of stock shipments December 10 through an order issued by Food Administrator Hoover.

This system will establish an "equalized, standardized, six day market" for Chicago, Mr. Hoover said. He based this opinion on the success met with in Kansas City, where the zone system has been in operation since November 12.

By the provisions of the zone system the live stock territory tributary to Chicago and Kansas City, the two largest markets of the country, is so apportioned as to insure better railway service and better handling of stock at the yards.

In order to prevent waste of perishable foodstuffs every railroad running into Chicago is to make a daily report to the Food Administration showing how many cars containing such goods are on its tracks and how long they have been held. The plan was decided at a meeting attended by representatives of the railroads, the Food Administration, the United States Department of Justice, and several charitable organizations.

By means of these reports delaying of shipments can be prevented. There will be government agents at all terminal points to see that there are no delays.

The true economy of rich shortening

In using shortening you want to get the most for your money.

Naturally, then, you look for a *rich* shortening. The *richer* it is, the farther it will go. The fat that is *richest* will go *farthest*.

Many careful housekeepers have found that Cottolene, because of its superior richness, goes much farther than other shortenings which they had been using.

If you have been accustomed to using butter for cake-making, and other fats for pies, biscuits, frying, etc., let wholesome Cottolene take the place of both for a while.

Then note the new economy in delicious cooking.

Be sure to use one-third less of Cottolene than you ordinarily use of other shortenings.

Recipe for PIE CRUST

1½ cups flour
½ teaspoon salt
½ teaspoon baking powder
¼ cup Cottolene
Ice water

Sift together flour, baking powder and salt. Chop in chilled Cottolene with knife (reserving 1½ tablespoons). Add just enough ice water to form soft dough, mixing it in with a knife. Roll out in thin sheet, spread lightly with remaining Cottolene, roll up like jelly roll and cut in two pieces, having one piece larger than other. Chill. Stand rolls on end, press down with hand and roll in circular piece to fit pie pan. Use larger piece for top crust. This recipe makes exact quantity of pastry for one medium sized pie with two crusts.

Baking powder may be omitted if desired.

Cottolene

"The Natural Shortening"

TIN and FIBRE
CONTAINERS

FOR

Foods, Drugs, Oils

Infinite Variety
Large Capacities
Prompt Deliveries

American Can Company
Chicago New York San Francisco
WITH OFFICES IN ALL LARGE CITIES

WM. J. MOXLEY'S
"SPECIAL"
OLEOMARGARINE

The Taste Is the Test

Where Quality and Economy Meet

Gives better satisfaction than 75 per cent of butter used. Cost one=third less. Try it and be convinced. Order a package from your dealer.

Churned by
WM. J. MOXLEY, Inc., Chicago

Staff Correspondence

It is expected that the new plan will keep cars moving faster and bring relief to those not now able to make shipments.

At the last session of the legislature the duty of administering the law with reference to weights and measures was transferred from the office of the Secretary of State to the Department of Trade and Commerce, one of the newly created departments under the Governor. The law also was amended by making it the duty of the Department annually to test and try the weights and measures of the various state institutions; and further required that all automatic devices used for measuring liquid commodities be tested and either sealed or condemned.

The law in this state declares that the county clerk of each county shall be the sealer of weights and measures for the county and shall have the care and custody of the county standards. It requires that he shall procure at the expense of the county a full set of standard weights, measures, scales and beams, which he shall cause to be tried, proved and sealed by the department of trade and commerce.

So far as investigation has been made, it develops that comparatively few county boards have authorized their county clerks to procure these standards. In these times, when everyone is urged to buy only such necessities as are needed and in attempting to do this one finds himself confronted with the high cost of living as applied to these absolute necessities, it is imperative that in paying high prices for actual necessities the purchaser should be assured that he is getting full weight at the price paid.

Indiana.

Numerous changes in the system under which the Department of Weights and Measures is conducted in Indianapolis are recommended in the report of the survey made by the New York Bureau of Municipal Research, and complaint is made throughout an extensive chapter of the report on the inefficiency of the Department as maintained under the present plan.

Inspector of Weights and Measures A. E. Mogle expects to fight the action of the mayor of Terre Haute in attempting to remove him from office and appoint in his place J. A. Buck. The law provides against removal on political grounds and this is the ground on which Mr. Mogle will fight.

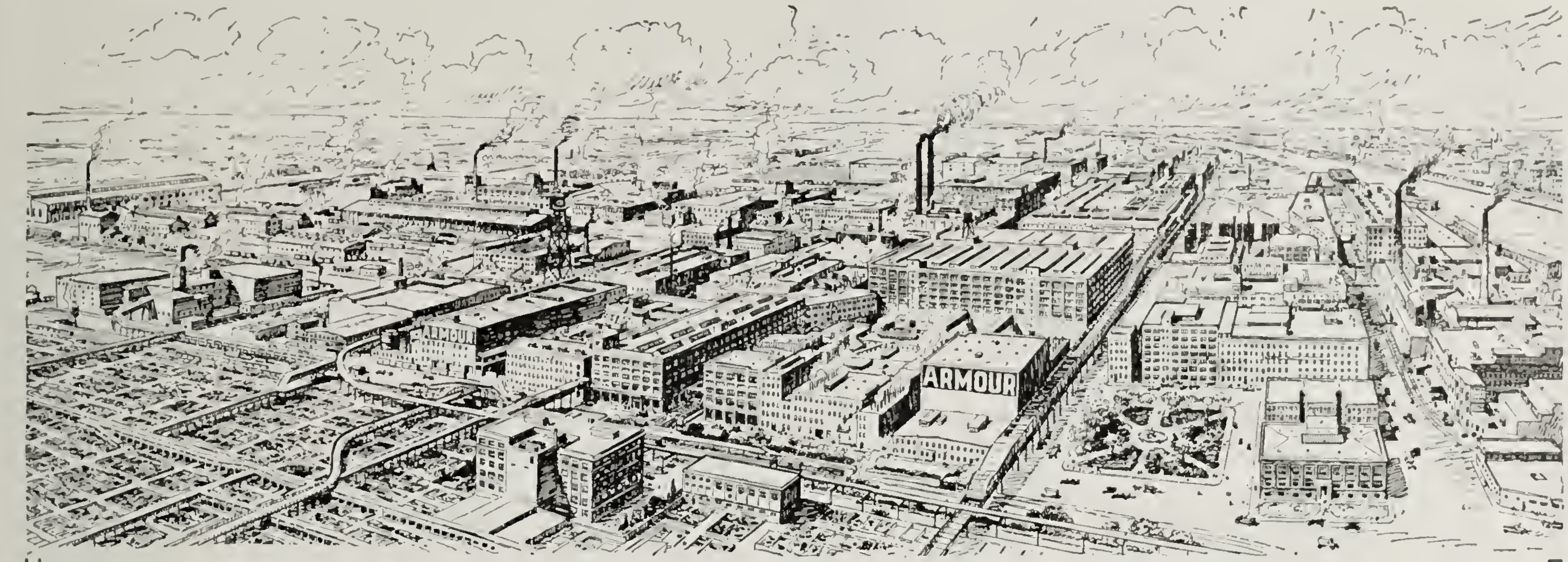
Iowa.

Food Administrator Deems is reported to be contemplating the licensing of all retail merchants of the state with a view to fixing prices and determining reasonable profits.

Iowa is planning a campaign to improve the butter produced in the state. The Dairy and Food Department is leading the movement, and expects to accomplish this through butter standardization.

Kansas.

F. E. Rowland, for the past five years one of the food and drug inspectors of the Kansas Pure Food Department, has been promoted to the position of assistant chief of the Department, in the place of Leon A. Congdon. Mr. Congdon has received a captain's commission in the Sanitary Corps of the Medical Reserve Army Service, after the War Department had granted a special age waiver permitting Mr. Congdon, who is 32 years old, to fill the commission requiring a minimum of 35 years of age.


ARMOUR AND COMPANY'S CHICAGO PLANT

IN uncertain times like the present, the importance of a trade-mark on foods takes on increased significance. For, it definitely fixes the responsibility for their origin and, by putting back of them the reputation of their manufacturers, becomes an assurance to consumers of sustained quality. The Armour Oval Label has behind it the jealously guarded Armour reputation of fifty years' standing—far too much at stake for the future to permit of anything but the very highest grade being sold under it.

Armour's QUALITY PRODUCTS

ARMOUR AND COMPANY
UNION STOCK YARDS, CHICAGO

1648

Louisiana.

A great movement of tonnage is expected to move New Orleansward very shortly. It is reported that there will be 35,000 tons in one shipment alone, now headed to New Orleans, which have been diverted from the Atlantic seaboard because of eastern shipping and transportation congestion. Some of the largest shipments by the government will be routed this way overseas. The Mississippi is expected to serve not only its valley, but the entire country, in relieving railroads of their freight burdens.

Massachusetts.

The federal Food Administration has created a federal milk commission for the territory supplying the city of Boston.

This commission is empowered to determine, after hearing, the reasonable prices of milk to be paid by purchasers to producers and by consumers to distributors, such prices to be based upon the cost of production and distribution, with a reasonable profit added in each instance.

The Food Administration believes that the controversy regarding the price of milk existing in the milk-producing territories and large consuming centers can not be settled until all facts bearing on the subject are presented to a competent and impartial tribunal, which will consider the evidence presented by all parties having an interest.

The producers and distributors have voluntarily agreed that no increase in the price of milk to consumers in Boston will be made while the commission is conducting the inquiry.

Minnesota.

Mr. H. D. Sibbald of Duluth, for six years food inspector, has been appointed assistant dairy and food commissioner for the state, to fill the position left vacant by the death of John McCabe.

Without waiting for the national Food Administration to promulgate its regulations relative to making and selling bread, the Minnesota Public Safety Commission, by way of experiment, directed the making and selling of white bread in Minneapolis at 6 cents a pound, effective November 12. The Commission directed the Occident Baking Company to prepare to make from 1,000 to 5,000 pounds of white bread daily, the Commission to take it from the racks at 5½ cents a pound. The bread was to be made of a good, though not the best grade of flour, and be attractive and wholesome.

Sample loaves submitted by the bakery proved satisfactory. It was to be made in two-pound loaves. Ten grocery stores were designated where the bread would be placed on sale at 12 cents for the double pound loaves. It was placed on sale, and the first lot of 1,608 pounds was sold out in less than two hours the morning of November 12. Other stores have since been designated, and the supply will be increased until it amounts to 5,000 pounds a day.

The bread is not wrapped. It is sold for cash at the counter, and the purchaser is obliged to furnish his own container to carry it away, the grocer not even being obligated to place a paper around it.

Missouri.

Live stock receipts at Kansas City are being stabilized under an effective operating plan of zone load-

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Staff Correspondence

ing on certain prescribed loading days in prescribed tributary states to the Kansas City market. This plan became effective November 12.

The plan devised by the United States Food Administration was freely discussed in detail and approved in a general conference of the involved interests held at Kansas City. Kansas City is the second largest live-stock market in operation in this country. The adoption of the agreed plan marks the solution of a live-stock marketing problem which has baffled the interests involved for more than fifteen years.

Montana.

The last legislature materially increased the appropriations to maintain the various activities of the State Board of Health. This has made it possible for Dr. W. F. Cogswell, executive secretary of the Board, to reorganize the work of the Board into divisions not possible under previous available funds.

Several of the new plans changed the personnel of the Board of Health laboratories, which are organized in connection with the Chemistry Department of the State College of Agriculture, Bozeman. In this connection it has been possible to divide the laboratory work more distinctively than before. There is now a food and drug laboratory and a separate water and sewage laboratory.

Professor W. M. Cobleigh, head of the Chemistry Department in the state college, is chemist of the Board of Health and will act as director of the Board of Health laboratories at the college.

Mr. Henry A. Halvorson of St. Paul has accepted the appointment as analyst in charge of the food and drug laboratory. Mr. Halvorson comes to this position especially well qualified through six years of experience in the laboratory of the Minnesota Food and Dairy Commission. He assumed his new duties on October 10, filling the vacancy caused by the promotion of Mr. H. M. Shea, former analyst, to the position of director of the Division of Food and Drugs of the State Board of Health, with offices in Helena.

Mr. H. B. Foote, formerly of the teaching staff of the college, has been appointed bacteriologist in charge of the water and sewage laboratory.

Under this reorganization the food and drug control work can be pushed more effectively than before

New York.

The U. S. Food Administration has announced the personnel of the federal Milk Commission appointed for the territory supplying the city of New York as follows: John Mitchell, New York State Food Commission; Dr. L. P. Brown, New York City Board of Health; Dr. W. H. Jordan, Director New York Agricultural Experiment Station; John T. Galvin, New York City Board of Water Commissioners; Arthur Williams, ex officio, federal Food Administrator for New York City, and others.

This Commission is empowered, to determine after hearing, the reasonable prices of milk to be paid by purchasers to producers, and by consumers to distributors, such prices to be based upon the cost of production and distribution, with a reasonable profit added.

The Food Administration believes that the controversy regarding the price can not be settled until all facts bearing on the subject are presented to a competent and impartial tribunal for consideration and

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decision. This commission will consider the evidence presented by all parties having an interest, whether producers, distributors, manufacturers of milk products, representatives of consumers or representatives of state and municipal governments, and base its findings upon that evidence.

After recent conferences of representatives of the interests named, it was their opinion that the plan suggested by the Food Administration was the only one that could properly solve the problem, and the Commission was appointed with their full approval and upon agreement by them to abide by its decision.

The producers and distributors have voluntarily agreed that no increase in the price of milk to consumers in New York City will be made while the commission is conducting the inquiry.

The Commission will, as soon as practicable, hold public hearings in New York City so that it may report not later than January 1, 1918.

A Food Administrator for New York State exclusive of New York City has at last been appointed, Mr. C. E. Treman.

It has been decided to divide the State Food Commission, of which Mayor Mitchel of New York City is chairman, into three bureaus or departments, the Departments of Production, of Conservation, and of Transportation and Distribution.

Ohio.

Food Administrator Croxton called a conference of commission men to find some solution for the waste of foodstuffs held up in car lots in railroad yards. The three special difficulties enumerated by Mr. Croxton for which he asked help in solving were:

1. The prompt adjustment of differences between shippers and consignees which are apt to lead to waste of perishable food.
2. Prompt unloading of all cars.
3. Release of more cars for transportation by eliminating as far as possible the reconsignment practice.

Administrator Croxton has asked retail grocers to limit sales of canned goods to not more than four cans of each commodity to any one customer representing an average household. The regulation is to be effective until further notice.

Its object is to assure equitable distribution of canned goods which were bought by retailers at a price that was lower than current price and which therefore will be sold to consumers at a lower figure than goods bought by grocers more recently. The Food Administration wants as many people as possible to have the advantage of low prices on goods bought by grocers some time ago.

It is reported that the Cincinnati Produce Exchange of the Chamber of Commerce is to have its methods investigated shortly by the Food Administration. The Produce Exchange has been compared to the Elgin Butter Board, which has just recently closed upon the request of the Food Administration, as being an anacronism, and as having set Cincinnati market prices although there is alleged to have been practically no trading on its floor for a long time.

Short weights in meat and potatoes are alleged against dealers in Canton by City Sealer Conrad. He says that in the case of potatoes the fault seems to lie in the custom of selling by measure rather than weight.

WHITE CORN FLOUR AND THE BREAD REGULATIONS..

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Pennsylvania.

A clash has occurred between the federal and the Pennsylvania state food laws in regard to codfish, and until some arrangement is made it is the plan to withdraw from sale within Pennsylvania large quantities of the fish which have been treated with boric acid. Dozens of arrests for violations have been made, and the state authorities have arranged to prosecute the cases. The difficulty arose when officials started to enforce the state law which forbids the use of the preservative in codfish. The federal law allows it to be employed under certain conditions.

Arrests have been made in Harrisburg for the sale of fruit syrups which contained coal tar dyes and other adulterants, some of the syrups being classed as liquors and others as soft drinks.

Washington.

The State Department of Agriculture reports that John J. Higgins, Seattle, assistant commissioner of the Department, died at his home in that city on August 3. Mr. Higgins had been at the head of the fourth division, covering foods, feeds, fertilizers, drugs and oils, and for nearly five years was a member of the Department.

On September 1 Will H. Adams of Spokane was appointed assistant commissioner. Mr. Adams is one of the oldest food men on the Pacific Coast. He has spent a lifetime in handling food and is considered an authority in the food field. For 13 years he has been the chief food inspector for the State.

The officers of the Food Division are as follows: Will H. Adams, chief of division, with rank of assistant commissioner of agriculture; George S. Henderson, Seattle, chief inspector of foods, meats, etc.; Edward L. Jones, Spokane, drug inspector; S. P. Wilson, Seattle, state oil inspector; Mrs. W. H. Coffin, Tacoma, bakery and restaurant inspector; Harry H. Collier, South Tacoma, feeds, food, etc.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912,

of The American Food Journal, published monthly at Chicago, Ill., for October 1, 1917.

State of Illinois, County of Cook, ss.—Before me, a notary public in and for the state and county aforesaid personally appeared R. G. Gould, who, having been duly sworn according to law, deposes and says that he is the Editor and Publisher of The American Food Journal and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor and business manager are:
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(Seal.) JOHN M. DELSON.
(My commission expires March 17, 1918.)

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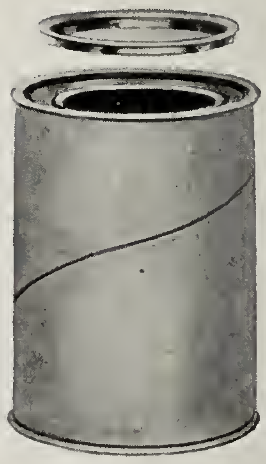

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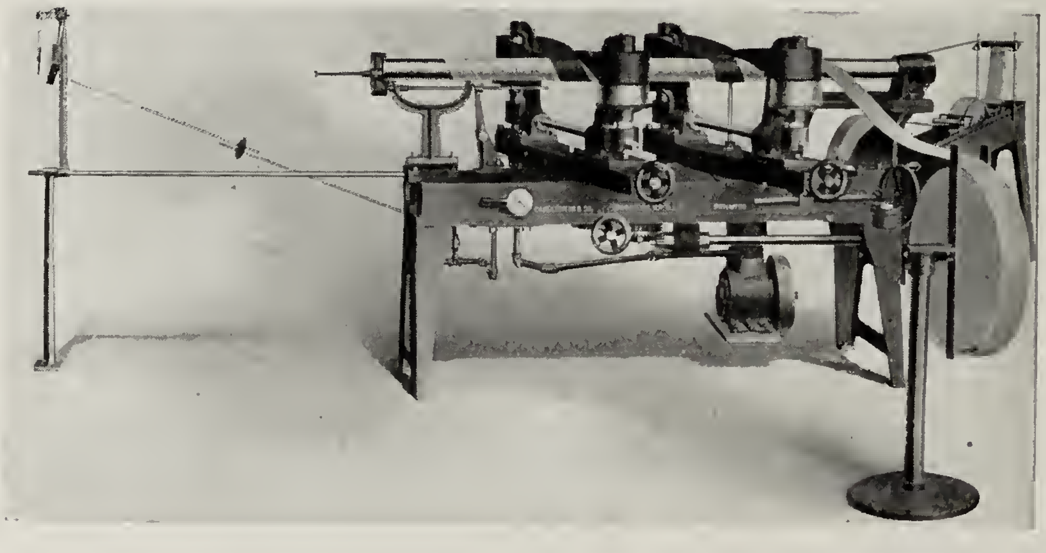

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